

**An Analysis of Trends in Student Achievement Based on Results from the National
Assessment of Student Achievement in Nepal**

A Study Report

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Research Team

Research Project Coordinator

Prof. Dr. Bhupa Prasad Dhamala

Research Team Composition

Prof. Dr. Rishi Ram Rijal	Principal Researcher
Dr. Narayan Prasad Timilsena	Researcher
Dr. Karna Bahadur Chongbang	Researcher
Ms. Sarala Luitel	Researcher
Mr. Ganesh Khanal	Field Researcher
Dr. Ganesh Dhamala	Field Researcher

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We hope this study will serve as a valuable resource for policy development and advocacy efforts aimed at improving the implementation of NARN and NASA trend analysis findings and recommendations at all levels of education.

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The Study Team!

Executive Summary

Student learning achievement refers to the measurable knowledge, skills, and competencies that students gain through formal schooling. It encompasses mastery of subject matter, literacy, numeracy, problem-solving, and higher-order thinking skills, which serve as foundations for lifelong learning, adaptability, and productivity in both economic and social domains. For countries like Nepal, these competencies directly influence future prosperity, as they prepare students to meet personal, professional, and societal challenges. Parents, educators, and policymakers rely on assessments to ensure that students are equipped with the knowledge and skills necessary for active participation in the workforce, family life, and citizenship. To serve this purpose, large-scale assessments such as NASA have been implemented to track learning progress, evaluate educational quality, and guide reforms. Although earlier assessments in Nepal were limited in scope and representation, the establishment of the Education Review Office (ERO) in 2010 enabled nationally representative testing, strengthening the basis for policy decisions and reforms.

However, Nepal's education system continues to face persistent challenges. Heavy reliance on rote learning, exam-oriented teaching, and weak teacher preparation hinder the development of critical thinking and practical problem-solving skills. NASA data have highlighted these weaknesses, especially in mathematics and science, where students struggle to apply knowledge to real-life contexts. Policy reforms following federalization in 2015 sought to decentralize educational governance, enhance accountability, and engage local communities, but inconsistent implementation and resource allocation remain significant hurdles. Moreover, inequities persist, with marginalized groups such as Dalits, indigenous peoples, and students with disabilities facing greater barriers to quality education. Tracking NASA trends is therefore crucial not only for national progress but also for meeting global commitments like SDG 4 on inclusive and equitable education. These assessments provide policymakers with evidence-based insights into learning gaps, policy effectiveness, and equity concerns, enabling strategies to strengthen student outcomes and prepare Nepalese youth for 21st-century competitiveness.

Objectives

The objectives of this study were to:

- a. analyze trends of NASA and NARN subject-wise results of grades 3, 5, 8, and 10 from different years (NASA reports, 2011 to 2023 & NARN report, 2020 to 2024).
- b. identify key influencing factors in students' achievement as indicated by various NASA and NARN reports, and analyze the trends of their influences/impacts on student achievement
- c. suggest the relevant school-related and other factors that influence students' achievement and need to be included while designing the NASA and NARN

This study employed an explanatory sequential mixed-method design (Quan to Qual), combining quantitative trend analysis of NASA (2011–2023) and NARN (2020–2024) reports with qualitative field research to provide a comprehensive understanding of student learning achievement in Nepal. In the first phase, quantitative data from successive NASA reports

were analyzed in terms of achievement trends across grades and subjects. The second phase relied on qualitative methods, interviews, focus group discussions, classroom observations, and school-level studies to interpret and validate the quantitative findings, exploring stakeholders' perceptions and policy implications. The study population included head teachers, SMC members, local education officials, EDCU representatives, teachers, students, and parents, with 14 purposively selected schools forming the qualitative sample. Data collection employed structured management forms, semi-structured interviews, and systematic field protocols, while analysis followed three stages: quantitative, qualitative, and integrated triangulation.

Summary of findings

Trends of NASA and NARN subject-wise results of grades 3, 5, 8, and 10 from different years (NASA and NARN reports; 2011-2024)

1. In **Grade Three**, between 2012 and 2015, the national mean scores declined noticeably in both subjects, with Nepali falling from 63 to 52 and Mathematics dropping from 60 to 45. Girls slightly outperformed boys in Nepali in both years, while boys and girls performed almost equally in Mathematics. Community schools consistently recorded lower mean scores than the national average in both subjects and both years. Institutional schools achieved higher scores than community schools, although their results also declined sharply by 2015. Overall, the data indicate a general downward trend in achievement across subjects, genders, and school types, with persistent disparities between community and institutional schools.
Similarly, between 2020 and 2024 in **Grade Three**, the national mean score in Reading increased slightly from 43.53 to 44.9, showing modest improvement. In Numeracy, the national mean score rose from 37.22 to 50.16, indicating strong progress over the period. In 2020, boys performed slightly better than girls in Numeracy (39.11 to 35.92), while Reading performance between girls and boys was nearly equal. In 2024, detailed gender data for Reading are not available that limits gender comparison. However, in Numeracy 2024, boys (53.2) outperformed girls (49.9), suggesting a widening gender gap in favor of boys in mathematics-related skills.
2. In **Grade Five**, between 2012 and 2015, the national mean scores declined in all three subjects, with Nepali dropping from 60 to 46, Mathematics from 53 to 48, and English from 54 to 47. In 2012, girls slightly outperformed boys in Nepali, while boys performed slightly better in Mathematics and English; however, by 2015, gender differences became minimal across subjects. Community schools generally recorded lower scores than institutional schools in most of the subjects and both years. But English in 2012 shows an unusual pattern where community schools scored (66) higher than the national mean. Institutional schools consistently achieved the higher scores than community schools in all subjects though there is also found declination from 2012 to 2015. Overall observation of the achievement trends, the data indicates a downward trend in student achievement over time 2012 to 2015, with persistent disparities between community and institutional schools.

Analyzing the trends of 2018 and 2022 for **Grade Five**, the national mean score in Nepali remained almost stable (decreasing 500 to 499), while Mathematics declined more noticeably from 500 to 485 in comparison to Nepali in the years 2018 and 2022. In both years of 2018 and 2022, girls slightly outperformed boys in Nepali but observing achievement trends in Nepali at 2022, girls scored noticeably higher than boys in Nepali (503 to 496). The boys performed marginally better in Mathematics, showing very less gender gap. Community schools were recorded lower performance compared to institutional schools in both years for both subjects; Nepali and Mathematics. The achievement figures of 2022 presented in percentage where community schools achieved 36.7% and institutional schools achieved 63.3% in Nepali and 39.5% in community schools and 60.5% in institutional schools in Mathematics that indicates a strong institutional difference. English and Science results for 2022 cannot be compared with 2018 due to the absence of corresponding baseline data.

3. In **Grade Eight**, between 2011 and 2013, the national mean score in Nepali slightly declined from 49 in 2011 to 48 in 2013, while Mathematics dropped sharply from 43 in 2011 to 35 in 2013. The performance of girls and boys in both years in Nepali was almost equal (49 in 2011 and 48 in 2013 for girls, 48 in both years for boys in Nepali) but boys outperformed girls in Mathematics. The boys achieved 45 in 2011 where girls achieved 41. In 2013 also in Mathematics, boys continued to score higher in comparison to girls (38 boys and 33 girls). Community schools consistently recorded much lower scores than institutional schools in both years and both subjects where 16 points difference is observed in Nepali and 24 points difference observed in Mathematics in 2011. Similarly, there was observed 23 (65-42) points difference in Nepali and 31 (57-26) points difference was observed in Mathematics in 2013 between community and institutional school. The difference indicates that the gap was observed in increasing trends in both subjects in Nepali (16 and 23) and in Mathematics (24 and 31) in both years 2011 and 2013. Finally, while analyzing the trends of achievements in Nepali and Mathematics in 2011 and 2013 shows a decreasing trend in achievement at grade eight.

Comparing the results between 2017 and 2020 for **Grade Eight**, the national mean score in Nepali remained stable at 500 in both years, while Mathematics declined from 500 to 483 and Science dropped more sharply from 500 to 470. In 2017, gender differences were minimal in Nepali (501 girls, 500 boys) but boys outperformed girls in Mathematics (505 boys and 495 girls), Similarly in Science, boys also scored slightly higher (503 boys and 498 girls) than girls. Likewise in 2020, girls slightly outperformed boys in Nepali (502 girls and 499 boys) and boys continued to perform better in Mathematics (490 boys 478 girls) than girls. Similar trends is found in Science as well where boys outperformed girls (473 boys 468 girls) slightly as Mathematics. While comparing the results between community and institutional schools for 2017 for all three subjects, institutional schools outperformed community schools as previous years 2011 and 2013 where gap in mathematics in community and institutional schools in 2017 is found wide in comparison to the achievement of Nepali and Science. Moreover, Comparing the results of 2020 between institutional and community schools only the achievements in Science 2020 is comparable. In Science, the institutional schools (500) performed considerably better than community schools (463) but observed decreasing trends in Science between both school

types in 2017 and 2020. The results are not comparable in Nepali and Mathematics due to reporting in percentage form, limiting school-type analysis for those subjects.

4. National performance shows mixed progress in **Grade 10** in the NASA report 2023 in comparison to 2019. Comparing the national mean scores in Mathematics (500 (2019) to 500 (2023)), Science (500 (2019) to 505 (2023)), Nepali (500 (2019) to 499 (2023)) and English (500 (2019) to 515 (2023)). Analyzing the proficiency level of all four subjects; Mathematics, Science, English and Nepali, the large number of students' performance is found higher in proficiency level I & II except English. In English, 32.4% students found in advanced proficiency level falling just 20.9% in proficiency level I. Large provincial disparities exist in Bagmati and Gandaki provinces consistently score highest (Math 517, English 536, Science 530), while Karnali and Sudurpaschim lag behind (Math 472, English 490, Science 487). Gender differences show that girls perform better in Nepali (girls 501 > boys 496), whereas boys perform better in English (boys 519 > girls 512), math (boys 507 > girls 493), and science (boys 512 > girls 499). School types strongly affect achievement; private school students perform better than community school students in all subjects as other's classes trends, with large gaps in Nepali (institutional 504 > 497 community) English (institutional 562 > 503 community), math (institutional 536 > 487 community), and science (540 institutional > 496 community). Overall, progressive trends can be observed in some areas, but still a remarkable gap is observed by subject, province, gender, and school types at grade 10.

Influencing Factors in Student Achievement

1. Learning outcomes of students in Nepal are deeply shaped by entrenched structural inequities and systemic barriers. Disadvantaged families, especially from rural and marginalized regions, face obstacles such as poor infrastructure, limited access to quality schools, and cultural-linguistic gaps that weaken learning engagement. These challenges are further intensified by minimal academic support, leaving many students underprepared compared to their urban and wealthier peers.
2. Community schools, which are the leading providers for disadvantaged groups, often struggle to deliver effective education due to weak management and political interference. Outdated pedagogical practices and insufficient financial or material resources contribute to declining student performance. However, some institutional and a few community schools with strong accountability and leadership models demonstrate better outcomes, highlighting the unevenness within the system.
3. The overall delivery of school education in Nepal is still reliant on traditional, lecture-driven instruction. However, that restricts creativity and critical thinking. Such methods discourage problem-solving and reduce opportunities for active student participation in classrooms. But it has been improving recently.
4. Alternative approaches such as differentiated instruction, experiential learning, and digital technologies are still underutilized in Nepali classrooms. These tools, if integrated meaningfully, can enhance inclusivity and improve understanding across diverse learning levels. Unfortunately, resource shortages and inconsistent teacher training limit their practical application.

5. Socio-cultural constraints continue to hinder education for girls, despite gradual progress in enrollment. Some girls face challenges linked to early marriage and household responsibilities, which reduce their chances of completing secondary education to some extent. Targeted measures such as mentorship programs, scholarships, and safe learning environments are crucial for overcoming these barriers.
6. Local education agencies play a pivotal role in bridging gaps by organizing teacher development initiatives, distributing resources, and fostering community involvement. Their contributions help reduce inequalities between urban and rural schools when leadership is strong and consistent. However, their success often depends on decentralization, local accountability, and equitable allocation of funds.
7. Institutional schools frequently outperform community schools due to their stronger infrastructure, better-trained teachers, and higher levels of accountability. This performance gap underlines the importance of designing locally tailored strategies that uplift weaker schools rather than widening inequalities. Sustainable progress requires a system that values inclusivity alongside excellence.
8. Student motivation and classroom experience are strongly influenced by teacher feedback, peer relationships, and the overall learning environment. Overcrowded classrooms, bullying, and the absence of individualized support create stress and disengagement for students, especially those needing extra attention. Encouraging constructive feedback, integrating extracurricular activities, and ensuring psychological safety can nurture holistic student growth.
9. Family engagement and home resources affect student achievement, with structured routines, supportive communication, and access to electricity or internet contributing to better outcomes. Rural and low-income families, however, face challenges such as after-school labor, limited study materials, and the absence of digital devices, which create barriers to equity. Strengthening parental awareness and bridging resource gaps through targeted policies can enhance learning environments' supportiveness and inclusivity.
10. To enhance student learning outcomes, Nepal must prioritize inclusive curriculum reform, sustained teacher professional development, and strategic use of ICT in schools. A combination of differentiated instruction, active community participation, and reliable monitoring systems can improve both quality and accountability. Coordinated reforms that balance equity with effectiveness will help shape a more resilient, engaging, and equitable education system for all learners.

Relevant school-related and other factors that influence student achievement and need to be included while designing the NASA and NARN

1. Learning outcomes and inequities are strongly shaped by family background and school access. To capture these influences, NASA/NARN should track infrastructure quality, distance to school, linguistic support for home languages, and availability of remedial programs. These variables would show how inequities between urban, rural, and marginalized groups directly translate into performance gaps.
2. Community school quality and management vary widely depending on leadership and governance. New variables should include head teacher accountability, frequency of political interference, and transparency in financial/resource management. This would highlight why some community schools perform at par with institutional schools while

others fall behind.

3. Traditional teaching practices dominate classrooms and limit higher-order skills. NASA/NARN should therefore assess the extent of lecture-based instruction, frequency of student participation, and opportunities for problem-solving or group work. By measuring pedagogy, the tests would reveal how instructional style mediates test outcomes.
4. Limited use of alternative tools such as ICT and hands-on methods also contributes to weak outcomes. Relevant variables could include availability and classroom use of computers, projectors, science labs, and project-based learning opportunities. These data would help identify whether poor performance stems from resource absence or lack of integration.
5. Socio-cultural barriers for girls continue to depress educational attainment. NASA/NARN could add variables such as rates of absenteeism due to household duties or menstruation, exposure to early marriage risks, and access to scholarships or mentorship programs. These measures would make gender-specific challenges visible in achievement analyses.
6. Local education agency effectiveness plays a pivotal role in supporting schools. To capture this, new variables should measure the frequency of teacher training sessions, resource distribution practices, and monitoring visits by municipalities or provinces. Such indicators would show where local decentralization has improved equity or reinforced gaps.
7. Institutional versus community school differences remain stark. NASA/NARN could assess teacher qualification levels, availability of teaching aids, and maintenance of infrastructure across school types. This would enable a clearer picture of why institutional schools consistently outperform community ones.
8. Student motivation and classroom experience hinge on climate and feedback. Additional test variables should cover class size, frequency of teacher feedback, incidence of bullying, and access to extracurricular activities. These school-climate indicators would highlight psychosocial factors that directly affect student performance.
9. Family involvement and home resources are critical for achievement. NASA/NARN should include these criteria: availability of electricity, internet, and study space, level of parental engagement in homework, and student workload from household chores or after-school labor. These home-environment factors would capture disparities not visible through school-level data alone.
10. Curriculum inclusivity and system reform remain long-term determinants of quality. For this, relevant variables could include curriculum adaptation to local languages and cultures, alignment with 21st-century skills, and implementation of continuous assessments alongside exams. These measures would show whether systemic reforms are being translated into classroom practices that affect outcomes.

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Chapter One: Introduction

The introduction chapter presents the background of the study, its objectives, the significance of the study, the scope of the study, and an overview of the related reports. Detailed explanations are covered in the following subtopics.

Background

Student learning achievement refers to the measurement of students' knowledge and skills acquired within a given time frame. It is the extent to which students acquire subject matter at a particular grade of formal schooling. The significance of formal schooling has long been recognized for a couple of reasons. First, it develops among youngsters the mastery of content knowledge on core subjects, which helps them understand the social, political, and economic world. Second, through developing that subject-specific knowledge and understanding, schooling also fosters improved literacy and numeracy skills in the form of reading, writing, and computation ability that enable them to retrieve, process, and communicate information to live an informed life (ERO, 2015).

On top of them, the significance of schooling lies in developing basic cognitive skills in the form of literacy and numeracy, which in turn form the foundation of problem solving, reasoning, advanced thinking, including the ability to adopt, diffuse, and innovate technology that has direct impacts on the job market outcomes, economic productivity, and social development. Additionally, these skills and knowledge acquired in early Grades of schooling lay a strong foundation for individuals to learn throughout their lives, helping people adapt and change to meet future challenges.

The prosperity and future development of a country and individuals largely depend upon the knowledge and skills learnt in schools by our youngsters, policy makers, educators, parents, and society. It seeks to have reliable information on how far those children are learning at school, whether they will be able to meet future challenges, and whether there are major gaps in their learning that need to be addressed.

The parents expect to know whether their children are acquiring the knowledge and skills needed to function as workers, family members, and citizens in the 21st century. Besides, measurement of such knowledge and skills is also essential to tracking development indicators and assessing the effectiveness of educational policies, programs, and practices (Boreman et al., 2003; Hanushek & Rivkin, 2010).

With these motifs of seeking reliable information on students' learning at schools and measuring the effectiveness of the education system, assessing students' achievement by means of standardized tests on a large-scale at various levels has evolved in the field of education. Nepal is no exception to adopting such large-scale achievement tests since 1995 to determine what students have learned because of their educational experiences. Various national level assessments of student achievement in Nepal (though they were carried out in small sample) were also conducted before 2011 for various Grades (in 1995, 1997, 2001 for Grade 3; in 1997 for Grade 4; in 1998, 1999; 2003, 2008 for Grade 5; in 1999 for Grades 6 and 8 and again in 2008 for Grade 8) aiming at assessing learning outcomes of students. The aim of such an assessment of student achievement was also to determine the level of learning

at respective Grades and to feed into policy in order to improve the education system. However, they were conducted by selecting relatively small samples and could be inadequate for national representation. Large-scale assessment with a nationally representative sample for the first time came into practice in 2011 after the establishment of the ERO under the Ministry of Education, Science and Technology (MOEST).

Curriculum relevance and pedagogical practices play an important role in student achievement. The education system of Nepal has long faced criticism for its substantial belief in rote learning and exam-oriented methods that limit the development of critical thinking and problem-solving skills (Poudel, 2021). NASA assessments have consistently pointed out students' difficulties applying knowledge to their daily life experiences, especially in mathematics and science. Furthermore, teacher training programs often fail to equip educators with the skills to implement innovative and inclusive classroom practices. These systemic challenges are reflected in the NASA data, emphasizing the urgent need for curriculum reform and teacher capacity building.

Policy reforms designed to improve education delivery have impacted student outcomes. Following Nepal's shift to federal governance in 2015, the responsibility for delivering education services has been decentralized to local governments. This decentralization has fostered greater accountability, equity, and community engagement in the education sector. However, implementing these reforms has been inconsistent, with many regional governments struggling to allocate resources effectively and monitor performance (Ministry of Education, 2019). Analyzing trends in NASA results may offer insights into the effectiveness of these reforms and identify areas that require further policy attention.

Global requirements, such as the Sustainable Development Goals (SDGs), have further highlighted the importance of improving learning outcomes in Nepal. Goal 4, which aims to ensure inclusive and equitable education for all, closely aligns with NASA's objectives of assessing the quality of education and monitoring disparities. Nepal has made progress in increasing access to education, but challenges persist in improving learning quality and ensuring equity. Marginalized communities, including Dalits, indigenous groups, and students with disabilities, continue to face significant barriers to education. NASA's findings are essential in tracking progress toward SDG 4 and informing strategies to reduce these gaps (United Nations, 2020). Therefore, the importance of analyzing NASA trends goes beyond national concerns. In an increasingly globalized world, the ability of the education system of Nepal to prepare students with 21st-century skills is essential for their competitiveness and the development of the nation. The frequently low performance of students in areas like critical thinking, numeracy, and literacy, as highlighted by NASA and NARN, raises concerns about the eagerness of Nepalese students to participate in the global economy. By identifying patterns in student performance, this study provides actionable insights into the complete and contextual factors influencing learning outcomes.

The trend analysis of NASA on Nepal is very important because it helps track the educational processes and progress. For policymakers and practitioners, it is essential to understand how the trend in achievement is evolving and whether it has increased or declined over time. This study informs policymakers about these trends by analyzing trends,

identifying gaps in educational attainment, and evaluating the effectiveness of policies designed in accordance with NASA's recommendations. It also gives hints on the transparency in the educational processes and products being accountable on the part of all stakeholders, like head teachers, teachers, SMCs, parents, students, as well as the personnel of the local education agencies.

Objectives

Research objective shapes the contents and process of research methods, tools, data analysis, and intended findings. The objectives of this study were to:

1. analyze trends of NASA and NARN subject-wise results of grades 3, 5, 8, and 10 from different years (NASA and NARN reports; 2011 to 2024).
2. identify key influencing factors in students' achievement as indicated by various NASA and NARN reports, and analyze the trends of their influences/impacts on student achievement
3. suggest the relevant school-related and other factors that influence students' achievement and need to be included while designing the NASA and NARN

Significance of the Study

The National Assessment of Student Achievement is an essential tool for analyzing the strengths and weaknesses of the Nepalese education system. An in-depth analysis of trends in NASA results can help policymakers, educators, and stakeholders understand the dynamics of student achievement and develop targeted interventions to enhance educational quality and equity. This study contributes to the growing body of research by examining these trends, identifying key challenges, and suggesting evidence-based strategies for improvement.

The National Assessment of Student Achievement (NASA) in Nepal has been essential for evaluating students' learning outcomes and identifying gaps in the education system. Despite its implementation, trends in student achievements reveal determined disparities across regions, socioeconomic groups, and genders. Research highlights that students from rural areas consistently underperform compared to their urban counterparts due to limited access to high-quality teaching, learning materials, and infrastructure (Government of Nepal, 2022). Similarly, socioeconomically disadvantaged students face barriers such as less parental support and inadequate educational resources, showing achievement gaps (World Bank, 2020). Gender disparities are another persistent concern, with girls often scoring lower than boys in subjects like mathematics and science, reflecting deep-rooted sociocultural biases (UNESCO, 2021).

Furthermore, while NASA provides a series of data on student achievement, there is a lack of systematic mechanisms for using these findings effectively in policymaking and educational reform (Government of Nepal, 2022). Studies indicate that the feedback loop between assessment outcomes and instructional improvements is weak, leading to inactivity in addressing identified issues (ADB, 2021). This disconnection has left room for raising questions about the effectiveness of the education system in fostering equitable learning environments. Moreover, the limited utilization of assessment trends data limits its potential to inform teacher training programs, curriculum revision, and targeted interventions. Addressing these issues is essential to ensure that NASA fulfill its role as an enhancer of

educational improvement and equity at schools in Nepal.

Scope of the Study

The scope to be covered by this research activity is given in the following points:

- Analysis of the subject-specific (Nepali, English, Mathematics, Science) trends from the NASA results of grades 3, 5, 8, and 10, focusing on the studies using IRT and Reading and Numeracy from the NARN results
- Identification of subject and grade-specific trends containing other variables
- Analysis of the trends and associated major factors influencing student achievement by studying the reports
- Statistical analysis of the quantitative data
- Literature review: research reports, articles, theoretical concepts, policy, and program plan
- Collection of stakeholders' perspectives on school-related, student-related, and home-related factors and analysis of them

An Overview of Earlier Research Reports, Articles, Theoretical Concepts, and Policy and Program Plans

A systematic and comprehensive literature review has been performed during the preparation of this report. For this process, the researchers have surfed websites, visited the client's digital and physical libraries, and employed the Google Scholar search engine for relevant articles. This comprehensive literature review encompasses empirical reports from NASA and NARN spanning various years, as well as conceptual, theoretical, and methodological literature, and policy and program documents. The literature review gives a strong foundation to this study, exploring the study gap and positioning.

As envisioned in the School Sector Reform Plan (2009-2015), the government of Nepal established the Education Review Office (ERO) in 2010 as an authorized assessment agency for carrying out research on assessment, conducting independent national-level assessments on student learning achievement and other educational issues to support the government in its efforts to reform school-level education. The mandate given by the Education Act 2028 (9th amendment) and its directive for conducting the assessment of students' achievement provide a systematic policy for improving the entire school education system. It submits the report of NASA to the education policy committee headed by the Minister of Education. After its establishment, ERO has been conducting large national assessments for grades 3, 5, 8 & 10 periodically based on the standard of the national curriculum and specification grids. The ERO has been performing to develop and update item banks in various subjects of school education and develop standard tests; carry out NASA in various grades in school education; carry out the student assessment on early grade reading skills; carry out literacy and numeracy at the primary level; and design frameworks, guidelines, and tools for NASA.

Since ERO is the authorized national assessment agency headed by a Joint Secretary

of the Government of Nepal, MoEST, to submit the reports with policy feedback to education policy committee headed by the Minister for Education, for providing technical support and guidance to the specialized functions of ERO, an assessment committee comprising university professors, experts in the field of educational management, student assessment, and evaluation has been formed under this agency. In the specific areas, subject committees have been working to support ERO in carrying out its functions smoothly. There is also a provision to form various subject committees to develop assessment tools, frameworks, and other guidelines. Under this agency, there are four distinct units (NASA unit, Performance Audit Unit, Research and Development Unit, and Planning, Monitoring, and Administration Unit) organized with their own key functions and headed by the directors at the undersecretary level of the Government of Nepal.

NASA is “designed to describe the achievement of students in a curriculum area aggregated to provide an estimate of the achievement level in the education system as a whole at a particular age or grade level” (Greanery & Hellaghan, 2007, p.7). The primary purposes of conducting NASAs are to provide the Ministry of Education, Science, and Technology with critical insights into evaluating the overall effectiveness of educational policies and practices in terms of student achievement and large-scale data on student learning outcomes. These studies are conducted for both backward and forward-looking purposes (ERO, 2017). The backward-looking purpose is primarily concerned with building a database that analyzes both the strengths and weaknesses of educational policies and practices that impact student learning achievement, whereas the forward-looking purpose focuses on providing policymakers with information to understand the changes that have occurred in student learning achievement over time (ERO, 2019). With the help of information from NASA studies, policymakers will, thus, be able to revise the existing policies to guide them towards formulating new policies to strengthen the quality of education (Poudel, 2017). These national assessments of student learning achievement also contribute to ensuring equity and access to all children in education, taking into account social variables like gender, ethnicity, language background, and identity with geography.

The assessment of students’ learning achievement in Nepal is seen to have been started in 1995 as an integral part of education development and reform initiatives. However, there was no dedicated assessment agency set up for carrying out and overseeing large-scale national assessments, and there were no fixed schedules either. According to Poudel and Bhattarai (2018), the assessments were supplied by external consulting firms based on classical test theories and by choosing a relatively small sample. Therefore, the comparison of results across different years was not only very difficult, but was also compounded by the use of multiple booklets to represent different content areas. There was, thus, very little systematic reform and improvement to assessment processes and methods. Similarly, the dissemination of results and input in policy formulation was also limited. The National Assessment of Student Achievement (NASA) conducted in various grades and subjects at the school level, has the following characteristics:

1. Large-scale assessment
2. Conduction by a representative sample

3. Use of a shared and participatory approach
4. Use of item response theory
5. Assurance of validity and reliability
6. Highly standardized, having a low stake
7. Conduction by an external consultant firm
8. Capacity development of internal ERO staff
9. Preparation of the item bank and analysis of every item
10. Data available to compare with other national and large-scale assessments

The assessment of students' learning achievement in Nepal began in 1995 as part of broader education development and reform efforts, but initially lacked a dedicated agency, fixed schedules, and systematic processes. Early assessments, conducted by external consulting firms and based on classical test theories with small samples, made it difficult to compare results across years, particularly because multiple booklets were used to represent different content areas. As a result, reforms in assessment methods were minimal, and dissemination of findings for policy use was limited. To address these gaps, the National Assessment of Student Achievement (NASA) was later introduced as a large-scale, representative, and standardized system of evaluation. It is characterized by the use of item response theory to ensure validity and reliability, a shared and participatory approach, capacity development for ERO staff, and preparation of item banks with detailed analysis of each item. While still carried out by external consultants, NASA has enabled the generation of nationally comparable data, aligning Nepal's practices with other international and large-scale assessments, and thus strengthened the role of assessment in guiding education policy and reform.

The Use of Classical test and Item Response Theories (CTT and IRT) in NASA result Analysis

The early cycles of NASA demonstrate Nepal's gradual transition from simple statistical reporting to modern psychometric approaches. In 2011, the Grade 8 assessment marked the beginning of national testing, where most findings were communicated using classical test theory (CTT) outputs like mean scores, subgroup comparisons, and reliability measures, the formats that were easy for policymakers to interpret. Yet, in the technical annex, item response theory (IRT) was applied to equate rotated booklets with link items. This dual system (CTT on the surface and IRT behind the scenes) signaled early recognition that simple percentages could not sustain comparability across multiple test forms. However, the 2013 Grade 8 cycle reverted to heavy reliance on CTT, with results presented mainly as mean percentages and item-level indices, while IRT calibration was largely absent. This regression simplified reporting but limited comparability across cycles, suggesting that institutional capacity or priorities still leaned toward traditional methods.

A decisive methodological shift emerged in the 2015 assessments of Grades 3 and 5, where IRT became central rather than supplementary. Reports explicitly documented

equating through rotated booklets with common link items, latent ability estimation, plausible values, and weighted likelihood estimation. These techniques were consistent with international large-scale assessments such as TIMSS and PISA. Percentages were still presented for accessibility, but emphasis shifted to ability scales and proficiency benchmarks that supported meaningful longitudinal and cross-subject comparisons. By 2017, IRT had become fully institutionalized within NASA, with ConQuest software used for item calibration, plausible value generation, and replication methods for error estimation. This positioned IRT as the foundation for scaling, equating, and reporting, aligning NASA with global best practices. Importantly, the use of proficiency levels linked to policy benchmarks improved the relevance of results for educational planning under Nepal's School Sector Reform and Development strategies.

Since 2018, NASA has fully institutionalized Item Response Theory (IRT) as the foundation of its methodology, moving away from earlier reliance on percentages and CTT outputs. The Grade 5 cycle of 2018 established IRT-based scaling (mean 500, SD 50), proficiency levels, and equating procedures for comparability across cycles and subgroups, setting the tone for all subsequent assessments. The 2019 Grade 10 cycle expanded this by incorporating anchor items for stronger equating, enabling robust subgroup analysis and policy alignment. In 2020, simultaneous assessments in Grades 3 and 8 further demonstrated the value of IRT for linking across cycles, producing trend data that would have been impossible under CTT. These cycles highlighted not just technical improvements but also NASA's evolution into a policy-relevant instrument with results tied to educational benchmarks and strategic planning.

From 2021 onward, IRT became more than a technical tool that was embedded into institutional capacity building and long-term sustainability. Training programs emphasized IRT-based scaling, standard setting, and equating, ensuring continuity even when full public reports were delayed. The 2023 cycle applied IRT calibration, plausible values, and expanded proficiency reporting by subgroup, linking results directly to SSDP and SDG targets. By 2023, NASA had reached maturity as a fully IRT-based national assessment system, offering longitudinal comparability, stable proficiency benchmarks, and internationally aligned methodology. This evolution demonstrates Nepal's successful transition from hybrid or CTT-dominated models to a globally recognized IRT framework, firmly positioning NASA as both a technical and policy-oriented instrument for improving education.

The following table summarizes the different rounds of the National Assessment of Student Achievement (NASA) in Nepal, showing the grades, subjects, and years covered. It highlights the scale of participation across districts, schools, students, teachers, and head teachers, reflecting the comprehensive nature of the assessments. Over time, the scope of NASA has expanded to ensure greater subject diversity, inclusivity, and national representation.

Table 1.1: *Subjects, sampled schools, students, subject teachers, and head teachers in NASA of different years*

Year	Sample					
	Subjects	Districts	No. of schools	No. of students	No. of subject Teachers	No. of head teachers
Grade 8 (2011)	Math, Nepali & Social studies	25	1201	48,682	1,156	11,58
Grade 3 (2012)	Maths, Nepali	28	1690	38,753	1690	1690
Grade 5 (2012)	Math Nepali English	28	1690	41,479	1690	1690
Grade 8 (2013)	Maths, Nepali, Science	28	1199	44067	1199	1199
Grade 3 (2015)	Maths, Nepali	23	1542	33,863	1542	1542
Grade 5 (2015)	Maths, Nepali, English	23	1,543	40,015	1,543	1,543
Grade 8 (2017)	Maths, Nepali Science	26	1,950	48,011	1,950	1,950
Grade 5 (2018)	Maths, Nepali	24	1,400	28,381	1,400	1,400
Grade 10 (2019)	Maths, Nepali, Science, English	75	1,800	22,217	1,800	1,800
Grade 8 (2020)	Maths, Nepali, Science, English	76	1800	43,886	1800	1800
Grade 5	Maths, Nepali,	75	1800	34,170	1800	1800

(2022)	Science, English					
Grade 10 (2022)	Maths, Nepali, Science, English	76	1800	43,219	1800	1800
Grade 10 (2023)	Maths, Nepali, Science, English	77	9585	43219	-	-
Grade 3 (2020)	Reading and Numeracy	33	580	7433	-	-
Grade 3 (2024)	Reading and Numeracy	33	579	7531	-	-

Table 1.2 below presents the grade-wise and subject-wise learning proficiency of students as found up to 2020. As the average achievement column of the table indicates, the ratio of the population that has the ability above the national achievement (NASA,2022).

Table 1.2: *The average national achievement of students*

S.N.	Year	Grade	Subject	Average achievement (%)
1	2011	8	Nepali	49
2		8	Mathematics	43
3		8	Social studies	49
4	2012	3	Nepali	63
5		3	Mathematics	60
6	2012	5	Nepali	60
7		5	Mathematics	53
8		5	English	54
9	2013	8	Nepali	48
10		8	Mathematics	35
11		8	Science	41
12	2015	3	Nepali	52
13		3	Mathematics	45
14	2015	5	Nepali	46

15		5	Mathematics	48
16		5	English	47
17	2017	8	Nepali	68
18		8	Mathematics	54
19		8	Science	44
20	2018	5	Nepali	61
21		5	Mathematics	48
22	2019	10	Nepali	63
23		10	Mathematics	54
24		10	English	49
25		10	Science	37
26	2020	8	Nepali	59
27		8	Mathematics	43
28		8	English	51
29		8	Science	38
30	2022	5	Math	485
31		5	Nepali	499
32		5	Science	500
33		5	English	500
34	2023	10	Math	500
35		10	Nepali	499
36		10	Science	505
37		10	English	515
38	2020	3 NARN	Reading comprehension	43.5
39		3 NARN	Numeracy	37.22
40	2024	3 NARN	Reading comprehension	44.9
41		3 NARN	Numeracy	50.16

Source: ERO 2022, 2024

The review of different NASA and NARN reports published so far reveals the following results in brief. The results are reported in the percentage of maximum marks,

where 100% represents all tasks solved and 0% none. The table below presents the grade-wise and subject-wise proficiency of students who had taken part in the assessments. The average achievement indicates the ratio of the student population.

NASA's average student achievements, shown in the above table, reveal that there is hardly any noticeable improvement in students' learning achievement. It indicates that increased enrollments do not necessarily guarantee student learning.

The National Assessment of Student Achievement (NASA), led by the Education Review Office (ERO), has consistently revealed wide disparities in student achievement across Nepal's education system. Apparent gaps exist between students, schools, districts, provinces, and ecological regions. Socio-economic background, school type, caste/ethnicity, and home language remain strong determinants of performance. Institutional schools continue to outperform community schools, with children from better-off, educated families achieving higher results, while students from low-income households and marginalized communities—particularly Janajati, Dalit, and Madhesi groups—lag behind. However, little difference has been found between boys and girls, rural and urban schools, or ecological belts, suggesting that inequality is more socio-economic and institutional than gender- or geography-based.

Another consistent finding is that Nepalese students excel at memorization and recall but struggle with higher-order skills such as application, problem-solving, and reasoning. This indicates a teaching and learning environment focused on rote learning rather than critical and creative thinking. Contributing factors include large class sizes, weak pre-service teacher education, reliance on traditional teacher-centered pedagogies, and limited use of real-world contexts in subjects such as mathematics, science, and English. These practices hinder the development of analytical, logical, and creative skills necessary for higher learning and adaptability in a competitive world.

Household and socio-cultural factors also strongly influence learning outcomes. Students from disadvantaged socio-economic backgrounds often spend significant time in household chores or paid work, reducing study hours and engagement with learning. Over-aged enrollment is another barrier, as older students consistently perform worse than their age-matched peers. Bullying, unfair treatment from teachers, and lack of parental involvement further depress achievement, especially in community schools where accountability mechanisms and teacher dedication are weaker. In contrast, children from educated households with access to books, tuition, and supportive environments demonstrate higher performance, underlining the importance of early childhood exposure and parental engagement in learning.

School-level practices and resources also explain achievement gaps. The absence of textbooks, teachers' reluctance to assign and check homework, irregular attendance of teachers, and low interaction with parents and community stakeholders undermine student learning in many community schools. On the other hand, institutional schools and a few high-performing community schools show better results because teachers in these settings are more consistent in giving and evaluating homework, engaging in classroom assessment, maintaining discipline, and interacting with colleagues to improve teaching practices. Smaller

student-teacher ratios, fewer incidents of absenteeism, and stronger school leadership further contribute to better performance in these schools.

Historical and contextual factors have also shaped achievement trends. For instance, frequent strikes and disturbances in 2011 reduced instructional days, directly affecting student learning outcomes. Recurrent challenges, including absenteeism among both students and teachers, low communication among stakeholders, and inadequate monitoring systems, have compounded these problems over the years. Despite multiple assessments and repeated findings, progress has been limited, with achievement levels stagnating across subjects, particularly in Nepali and science, where Madhesi students continue to perform worse than their counterparts from the hilly regions. The persistence of similar patterns in successive assessments signals insufficient interventions and weak implementation of policy reforms.

Overall, NASA findings highlight systemic weaknesses in Nepal's education sector. While assessments provide valuable data for policymakers, their low-stakes nature means results are rarely translated into meaningful reforms at the school level. Persistent inequalities between institutional and community schools, urban and rural contexts, and socio-economic groups remain unaddressed. Quality classroom delivery, effective school leadership, teacher professionalism, and parental involvement are repeatedly identified as key factors in improving outcomes. However, without strong accountability, teacher development, and equitable distribution of resources, student learning in Nepal risks remaining stagnant. To raise achievement levels to international standards, there is an urgent need to holistically strengthen the education system, focusing on equity, quality, and meaningful learning that goes beyond rote memorization.

Factors Influencing Student Achievement: An Overview

Student achievement is profoundly shaped by family background and socioeconomic circumstances. Coleman (1966, 1968) highlights the significant influence of family income, parental education, and home-based learning support. These factors form the foundation for a child's academic success. Building on this, Ginsberg and Bronstein (1993) found that parenting styles that encourage autonomy and intrinsic motivation foster better academic outcomes, while controlling parental behavior leads to poorer performance. More recently, Choe (2020) emphasized parental support as a strong predictor of student achievement.

External responsibilities also play a role in students' academic journeys. Heady (2003) revealed that students burdened with work outside the home are more likely to experience lower achievement levels. Similarly, Ehrenberg et al. (1989) identified high absenteeism as detrimental to learning progress. Yuan and Keeves (2001) add that regular engagement with homework positively affects academic performance, suggesting that time management and learning reinforcement at home are critical.

The quality of school environments impacts student learning. Heneveld and Graig (1969) argue that the school climate and the processes of teaching and learning are pivotal. Pennywick (1993) emphasizes the need for foundational resources, supportive conditions, and effective school management, especially in low-income contexts. Anderson and Burns

(1987) point to instructional practices and well-organized materials as key drivers of mastery learning.

Teacher-related factors also play a crucial role in shaping academic success. Sanders, Wright, and Horn (1997) establish that teachers' performance, including their ability to engage students, directly affects learning outcomes. Saha (1983) expands this by highlighting how teachers' expectations, punctuality, attitudes, and behavior—such as assigning homework and preparing lessons influence student achievement. Sirait (2016) further underscores that both pre-service and in-service training enhance teachers' capacity to deliver quality instruction.

Leadership within schools is another determinant of student performance. Bossert et al. (1982) argue that head teachers influence achievement through the school's organizational culture, teacher development, and overall management practices. Hallinger, Bickman, and Davis (1996) illustrate how leadership shapes the learning environment indirectly, creating supportive structures and fostering institutional efficiency that enable student success.

Community involvement is increasingly recognized as a catalyst for improved learning outcomes. Sawada (1999) notes that active engagement from the local community contributes to academic improvement. Hara et al. (2020) provide evidence that close partnerships between schools and communities elevate learning quality. The Ministry of Education, Youth and Sports (MOEYS, 2018b; 2018e) shows how community participation in school management, planning, and accountability fosters shared responsibility and tangible improvements.

Taken together, these studies reveal that student achievement is a multifaceted phenomenon influenced by intersecting domains, such as home, school, teaching practices, leadership, and community engagement. Each factor interplays with others, reinforcing or hindering educational progress depending on how holistically they are addressed within the learning ecosystem. Thus, promoting equity and quality in student achievement requires strategic attention to these diverse variables. Tailored interventions that enhance parental involvement, strengthen instructional practices, support teacher development, and mobilize communities can collectively transform the educational landscape, especially in resource-constrained settings.

Chapter Two: Methodology

This chapter focuses on the methodological parts of the overall study. Study design of the research, population, and the sample for the study, major tools to assess the data, and the data analysis procedures are highlighted in this chapter.

Study Design

Methodologically, the study has used a mixed research design. This research has utilized a sequential mixed research design, which is the procedure for collecting, analyzing, and interpreting both types of information in a single study (Cresswell & Plano Clark, 2011). The trend analysis of the NASA tests over different years, from 2011 to 2023, has been analyzed by using a quantitative approach based on the analysis of NASA reports, and for the verification of trend results, the qualitative approach, along with interviews, focus group discussions, and the classroom observation method of data generation, has been used comprehensively. The quantitative approach has focused on the trend analysis of the mean scores and standard deviations to draw the trends, and the qualitative approach, through individual interviews and FGDs, has tried to explore the participants' perception of policy implications, the influence of these on the student learning achievement, and the significance of these trends after utilizing the numerical data of the NASA reports. Finally, analysis is conducted through the triangulation of the results of both parts: quantitative and qualitative findings.

The quantitative part is more dominant. However, qualitative research has been conducted to explain or justify the quantitative findings. Hence, an explanatory sequential mixed-methods design (QUAN to qual) has been employed in this study. In the first phase, quantitative data were elicited from study reports on NASA for the years 2011, 2012, 2013, 2015, 2017, 2018, 2019, 2020, 2022, and 2023, as well as NARN for 2020 and 2024. The student achievement data in the subjects, grades, and other variables elicited from the sequential series of the years' reports have been used to analyze trends by employing statistical tools. Hence, the first phase of the study was a desk review based on the NASA reports. In the second phase, relying on the statistical results of the trends analysis, the qualitative data were collected through interviews, observations, and focus group discussions. Each researcher prepared school-level research reports of a qualitative study. Then, an integrated report of QUANT and QUAL results and findings has been developed and interpreted with the help of theories, other research findings, and policy intents to construct meaning derived from the research evidence. The second phase was a field-based study.

Population and Sample Size

Stakeholders (head teachers, SMC members, local education officials, EDCU, representative teachers, students and parents) of community and institutional schools operating grades 3, 5, 8, and 10 are the population of this study, whose information is reflected in the NASA and NARN study reports. Among the stakeholder agencies and individuals, 14 schools (community and institutional schools) were purposively selected for qualitative research that had participated in the NASA and NARN studies. The respective authorities under EDCU/municipality, SMC members, head-teacher/principal, subject

teachers, students, and the respective classes were sampled in the live field study. The sample schools were confirmed through negotiation with the client. The sample selection criteria and sample size for the primary data are given in Table 2.1.

Table 2.1: Sample Selection Criteria and Sample Size

Province/ Geography/ District	School Types	Class observatio n/ Grade	Subject Teacher	Student	Head Teacher	SMC Member	Parents	Munici- pality Education Personnel	EDC U	ETC
Koshi/ Solukhumbu (Rishi+Bhup	Community	1	4	6	1	1	6	1	1	
	Institutional	1	4	6	1	1	6			
a)										
Madhesh/ Mahottari (Ganesh)	Community	1	4	6	1	1	6	1	1	1
	Institutional	1	4	6	1	1	6			
Bagmati/ Bhaktapur (Sarala)	Community	1	4	6	1	1	6	1	1	1
	Institutional	1	4	6	1	1	6			
Gandaki/ Syangja (Karna)	Community	1	4	6	1	1	6	1	1	1
	Institutional	1	4	6	1	1	6			
Lumbini/ Dang (Karna)	Community	1	4	6	1	1	6	1	1	
	Institutional	1	4	6	1	1	6			
Karnali/ Surkhet (Narayan)	Community	1	4	6	1	1	6	1	1	
	Institutional	1	4	6	1	1	6			
Sudurpaschi m/ Achham (Narayan)	Community	1	4	6	1	1	6	1	1	
	Institutional	1	4	6	1	1	6			
Total		14	56	84	14	14	84	7	7	3

We have chosen head teachers, SMC members, Local education officials, EDCD, representative teachers, students and parents as the patients of the sample of qualitative part of the research investigations the head teachers are the ones who shape the schools vision, management and student success through visionary leadership, coordinating with SMC, teachers, parents as well as with local education line agencies, ensuring high quality teaching practices, forming collaboration and team spirit in the schools. The SMC supports ensuring quality education by overseeing school operations and fostering community involvement. The local education official oversees the execution of educational policies, programs, and organizes staff development opportunities, monitoring and supervision, and school infrastructure development. Similarly, the EDCU is the coordinating body to bridge the

federal and provincial policies and programs with the local education agencies, as well as the schools. So, they play very important roles in shaping the quality of education and students' higher learning achievement.

The teachers are the key elements to handle the educational institutions through quality classroom delivery, guiding and counselling the students, and observing and evaluating students' performances and progress. Every educational institution has its face is the students who are the ones which behavior dispositions knowledge, skills and attitudes are shaped" as required by the nations, the parents not only produce the conducive learning environment for student learning at home through providing necessary learning tools, arranging atmosphere, high expectation, support in their children's weaknesses, but also receive the fruits of the whole education process. Therefore, they have been taken as the informants in this investigation.

Tools for Data Collection

For data collection from secondary and primary sources, the following tools were developed during the development of the report for the quantitative analysis. Contents in the tools were related to issues found in the NASA, and NARN informed behavior change of teachers and school administrators, trends, programs/policies in a series of studies. The qualitative research tools were developed and presented to the client, while the quantitative part of the report was presented.

Data management form. A scheme was developed to manage the student achievement data collected from the NASA and NARN reports. The data have been organized in both tabular and verbal forms regarding subject, year, and other variables.

Interview. The semi-structured interview guidelines were developed for key informants (KIs) (head teacher, SMC member, local education personnel/authorities, and teachers).

Data Collection

Quantitative data were gathered by reviewing different NASA reports and frameworks. Qualitative data were collected as planned in the timeline in the proposal. The sites, districts, and researchers for the research sites were determined through discussion and consensus. The primary and secondary sources were dealt with in a careful, systematic, engaged, and ethical manner.

Data Analysis

The data analysis task was conducted in three phases and forms: quantitative data analysis, qualitative data analysis, and integrated data analysis, which brought the quantitative and qualitative data under a common theme. The quantitative data analysis framework for the NASA report is presented in Table 2.2.

Table 2.2: *Trend Analysis Frame*

Grade	Subject	Years			
Grade 3	Nepali	2012	2015		
	Mathematics	2012	2015		
Grade 3	Reading			2020	2024
	Numeracy			2020	2024
Grade 5	Nepali	2012	2015	2018	2022
	English	2012	2015		2022
	Science				2022
	Mathematics	2012	2015	2018	2022
Grade 8	Nepali	2011	2013	2017	2020
	Mathematics	2011	2013	2017	2020
	Social Studies	2011			
	Science		2013	2017	2020
Grade 10	Math			2019	2023
	Nepali			2019	2023
	Science			2019	2023
	English			2019	2023

The quantitative part of this investigation has been prepared with information and data from the NASA report since 2011 AD. The data are the mean scores used in those reports to draw the trends in NASA results. Although there should have been hypothesis testing in such a survey quantitative analysis, here, in this analysis, only the descriptive statistical tools of mean scores have been dealt with extensively.

Quality Criteria of the Study

For explanatory sequential mixed-methods research, maintaining quality requires rigorous attention to both quantitative and qualitative components and their purposeful integration. Firstly, the study has articulated a clear rationale for employing an explanatory design, where quantitative results are followed by qualitative data to provide deeper understanding or explanation. Rigor in the quantitative phase has followed strong sampling, valid and reliable measures, and appropriate statistical analysis to ensure generalizability and minimize bias. Simultaneously, the qualitative phase has also maintained trustworthiness through credible data collection, rigorous analysis (e.g., thematic analysis, coding), and clear demonstration of transferability. A critical quality criterion has a clear and coherent connection between the two phases, demonstrating how the qualitative findings genuinely elaborate upon or explain the initial quantitative results.

Chapter Three: Analysis of Trends of NASA and NARN Subject- Wise Results of Grades 3, 5, 8, and 10 from Different Years

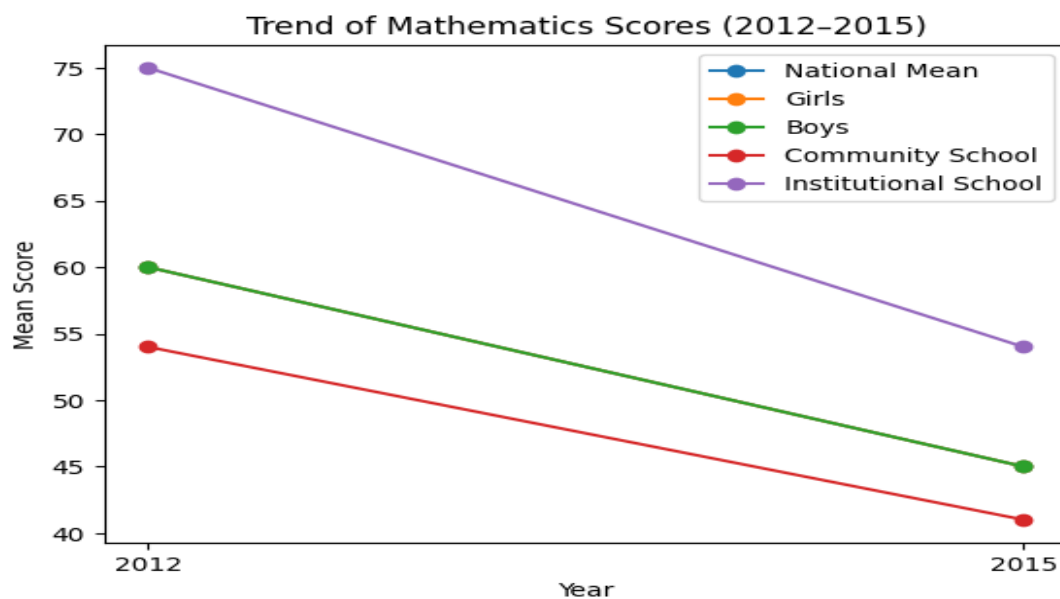
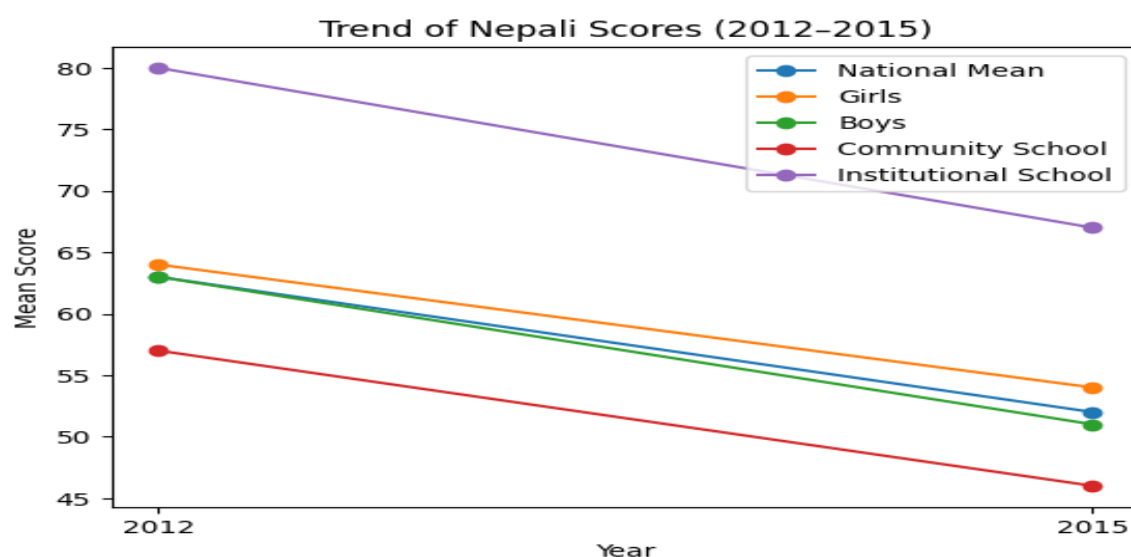
This chapter presents the trends in the National Assessment of Student Achievement (NASA) that have been indicated in NASA Reports, 2011-2023. This has been a cornerstone in the education system of Nepal for tracking learning outcomes and evaluating curriculum efficacy. Between 2011 and 2023, NASA assessments spanned Grades 3, 5, 8, and 10, progressively expanding their subject coverage. Grade 3 focused on foundational literacy and numeracy, assessing Math and Nepali in 2012 and 2015. Grade 5 displayed broader engagement, with Math, Nepali, and English consistently assessed from 2012 to 2022, and Science added in the later years, highlighting a growing emphasis on multilingual competencies and scientific inquiry. Grade 8 maintained a stable framework, consistently evaluating Math, Nepali, and Science, with Social Studies and English included intermittently, signaling a shift toward interdisciplinary learning. Grade 10 received the most comprehensive subject coverage in 2019 and 2023, incorporating Math, Nepali, English, and Science, aligning with national goals for holistic evaluation and secondary-level benchmarking.

Overall Achievements in the NASA and NARN Report from 2011 to 2024

Table 1: *Grade 3 (2012-2015)*

Year	National mean	Girls	Boys	Community School	Institutional School
2012					
Nepali	63	64	63	57	80
Math	60	60	60	54	75
2015					
Nepali	52	54	51	46	67
Math	45	45	45	41	54

Between 2012 and 2015, the national mean scores declined noticeably in both subjects, with Nepali falling from 63 to 52 and Mathematics dropping from 60 to 45. Girls slightly outperformed boys in Nepali in both years, while boys and girls performed equally in Mathematics. Community schools consistently recorded lower mean scores than the national average in both subjects and both years. Institutional schools achieved significantly higher scores than community schools, although their results also declined sharply by 2015. Overall, the data indicate a general downward trend in achievement across subjects, genders, and school types, with persistent disparities between community and institutional schools.

*Figure***1:** Achievement Trends of Grade 3 (2012-2015) Math**Figure 2:** Achievement Trends of Grade 3 (2012-2015) Nepali**Table 2:** Grade 3 (2020-2024) Reading and Numeracy

Year	National mean	Girls	Boys
2020			
Reading	43.53	43.77	43.65
Numeracy	37.22	35.92	39.11
2024			
Reading	44.9	Not analysis	Not analysis
Numeracy	50.16	49.9	53.2

Between 2020 and 2024, the national mean score in Reading increased slightly from 43.53 to 44.9, showing modest improvement. In Numeracy, the national mean rose significantly from 37.22 to 50.16, indicating strong progress over the period. In 2020, boys performed slightly better than girls in Numeracy (39.11 to 35.92), while Reading performance between girls and boys was nearly equal. In 2024, detailed gender data for Reading are not available, limiting gender comparison for that subject. However, in Numeracy 2024, boys (53.2) outperformed girls (49.9), suggesting a widening gender gap in favor of boys in mathematics-related skills. Trends analysis is given in the analysis part (See pages 101-110).

Table 3: *Grade 5 (2012-2015)*

Year	National Mean	Girls	Boys	Community School	Institutional School
2012					
Nepali	60	61	59	54	78
Math	53	53	54	49	67
English	54	53	55	66	83
2015					
Nepali	46	48	46	43	61
Math	48	50	48	45	61
English	47	47	47	38	73

Between 2012 and 2015, the national mean scores declined in all three subjects, with Nepali dropping from 60 to 46, Mathematics from 53 to 48, and English from 54 to 47. In 2012, girls slightly outperformed boys in Nepali, while boys performed slightly better in Mathematics and English; however, by 2015, gender differences became minimal across subjects. Community schools generally recorded lower scores than institutional schools in most subjects and both years, although English in 2012 shows an unusual pattern where community schools (66) scored higher than the national mean. Institutional schools consistently achieved the highest scores in all subjects despite experiencing declines by 2015. Overall, the data indicate a downward trend in student achievement over time, with persistent disparities between community and institutional schools.

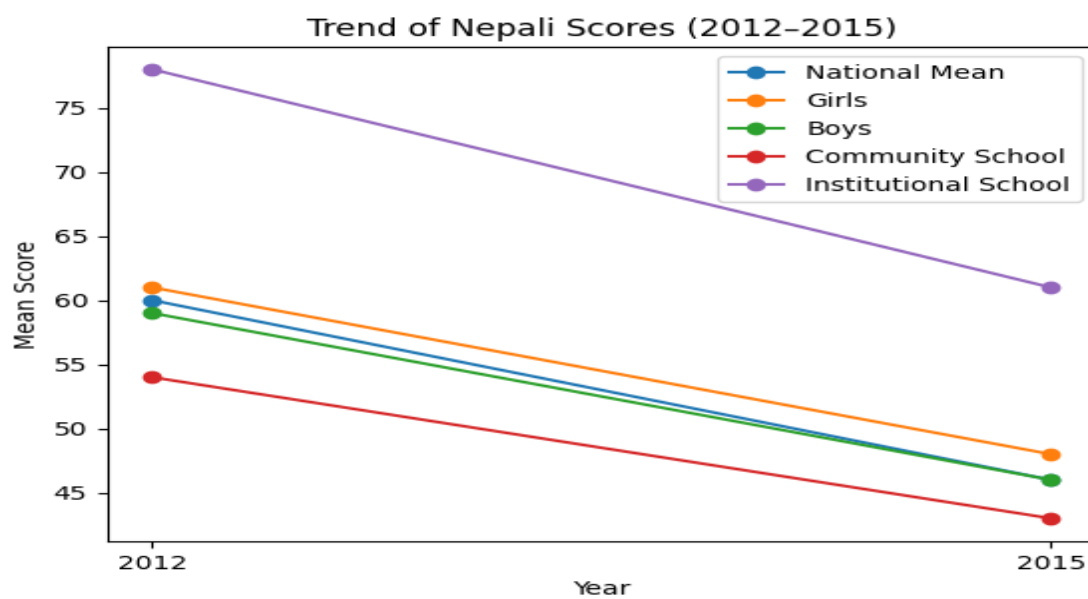


Figure 3: Achievement Trends of Grade 5 (2012-2015) Nepali

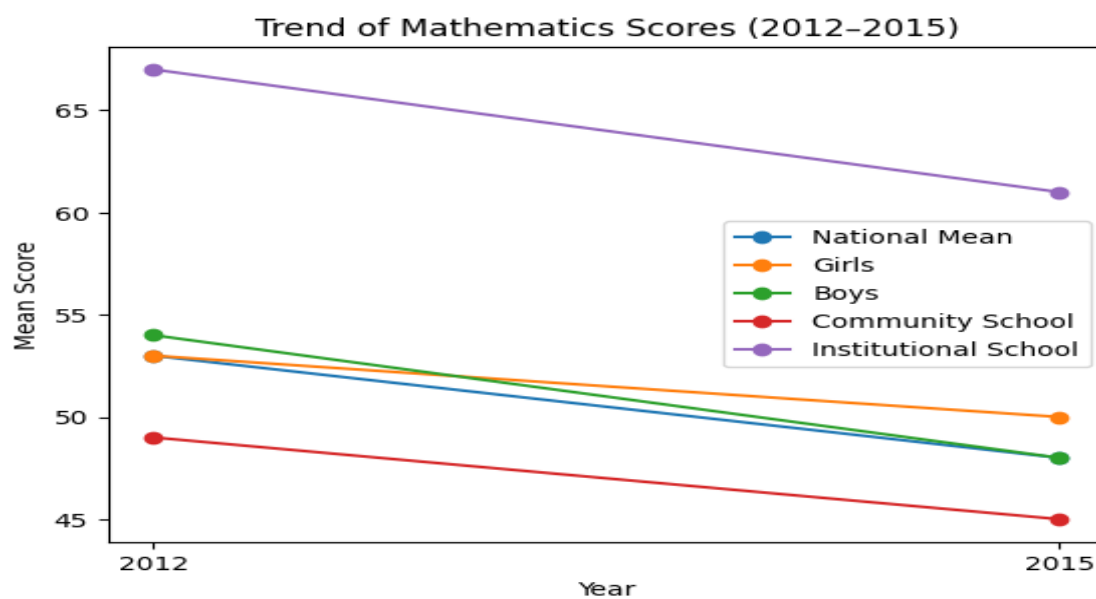


Figure 4: Achievement Trends of Grade 5 (2012-2015) Math

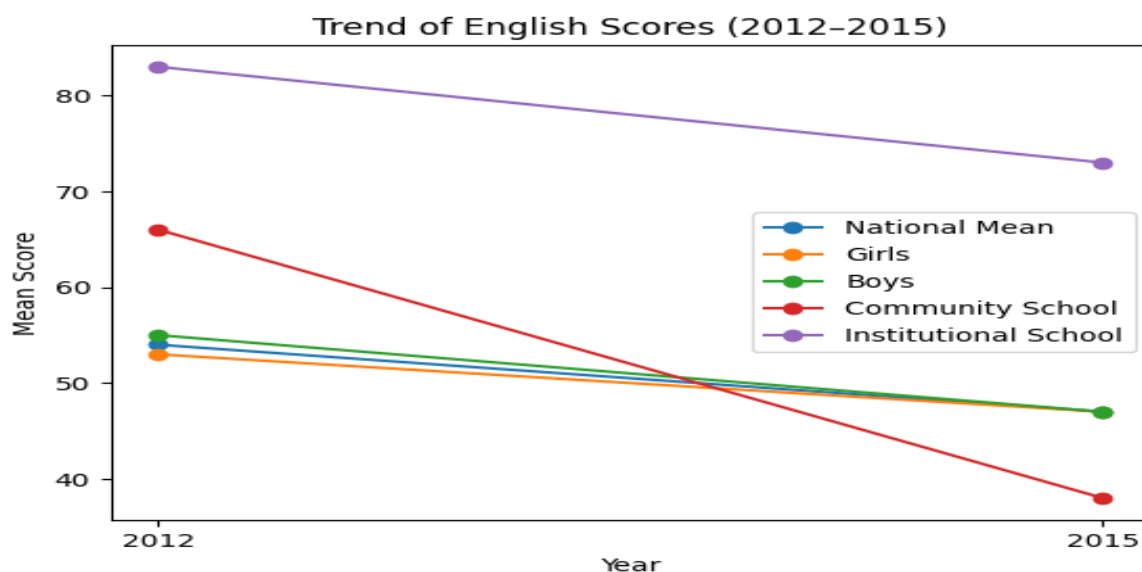


Figure 5: Achievement Trends of Grade 5 (2012-2015) English

Table 4: Grade 5 (2018-2022)

Year	National mean	Girls	Boys	Community School	Institutional School
2018					
Nepali	500	501	499	491	525
Math	500	499	500	493	523
2022					
Nepali	499	503	496	36.7	63.3
Math	485	484.5	485	39.5	60.5
English	Not compared with 2018				
Science	Not compared with 2018				

Between 2018 and 2022, the national mean score in Nepali remained almost stable, slightly decreasing from 500 to 499, while Mathematics declined more noticeably from 500 to 485. In 2018, girls slightly outperformed boys in Nepali, whereas boys performed marginally better in Mathematics, showing very small gender differences overall. In 2022, girls scored higher than boys in Nepali (503 to 496), but Mathematics results remained nearly equal between genders. Community schools recorded lower performance compared to institutional schools in both years, although the 2022 figures appear to be presented in percentage form (36.7 to 63.3 in Nepali and 39.5 to 60.5 in Math), indicating strong institutional advantage. English and Science results for 2022 cannot be compared with 2018 due to the absence of corresponding baseline data.

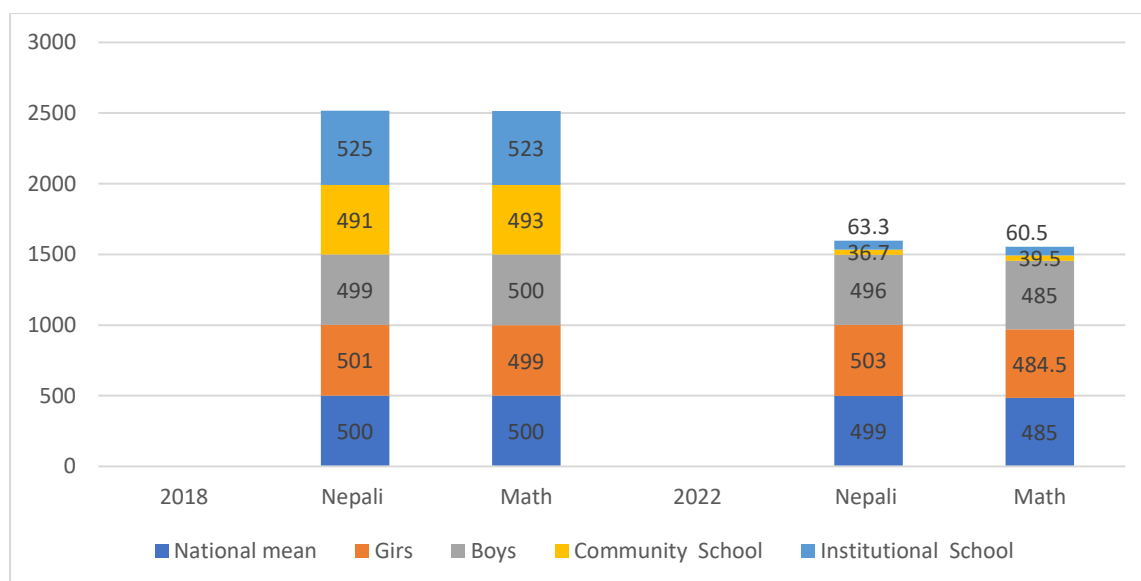


Figure 6: Achievement of Grade 5 Nepali and Math

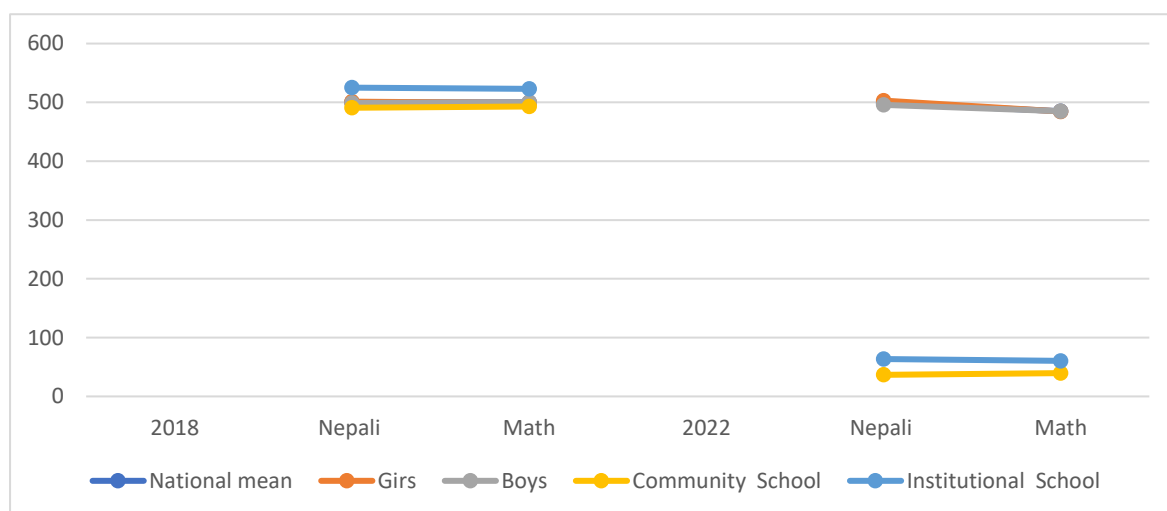


Figure 7: Achievement Trends of Grade 5 Nepali and Maths

Table 5: Grade 8 (2011-2013)

Year	National mean	Girls	Boys	Community School	Institutional School
2011					
Nepali	49	49	48	46	62
Math	43	41	45	39	63
Vs.2013					
Nepali	48	48	48	42	65
Math	35	33	38	26	57

Between 2011 and 2013, the national mean score in Nepali slightly declined from 49 to 48, while Mathematics dropped sharply from 43 to 35. In 2011, boys outperformed girls in

Mathematics (45 to 41), but in Nepali their performance was almost equal; by 2013, gender differences in Nepali disappeared, while boys continued to score higher in Mathematics (38 to 33). Community schools consistently recorded much lower scores than institutional schools in both years and both subjects. The achievement gap between community and institutional schools was especially wide in Mathematics, increasing from 39 to 63 in 2011 to 26 to 57 in 2013. Social Studies (2011) and English (2013) cannot be compared due to the absence of corresponding data for both years.

Figure 8: Achievement Trends of Grade 8 in Nepali

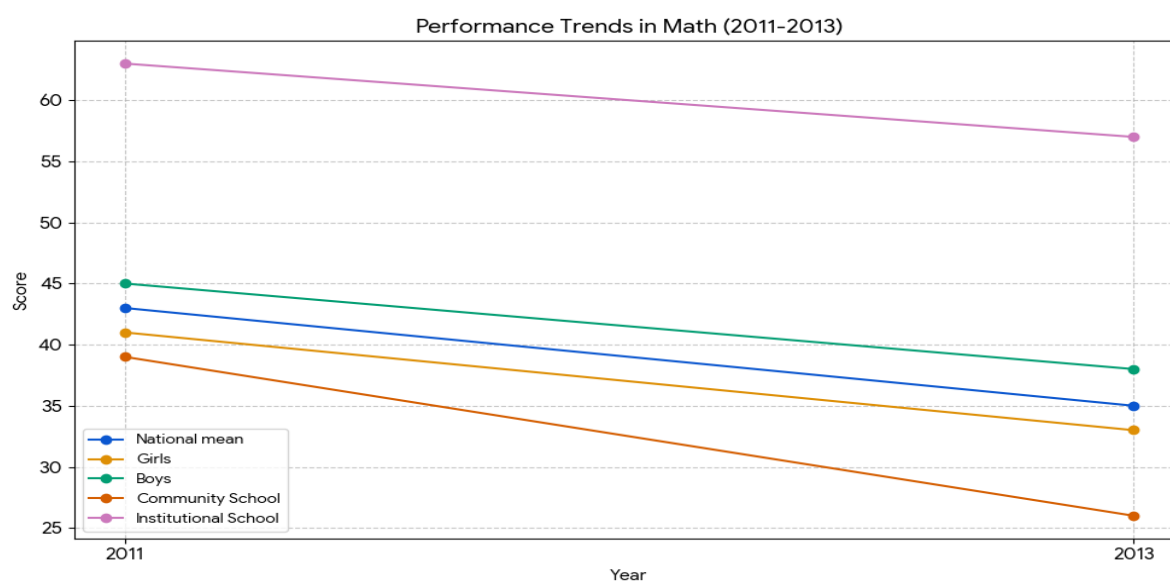
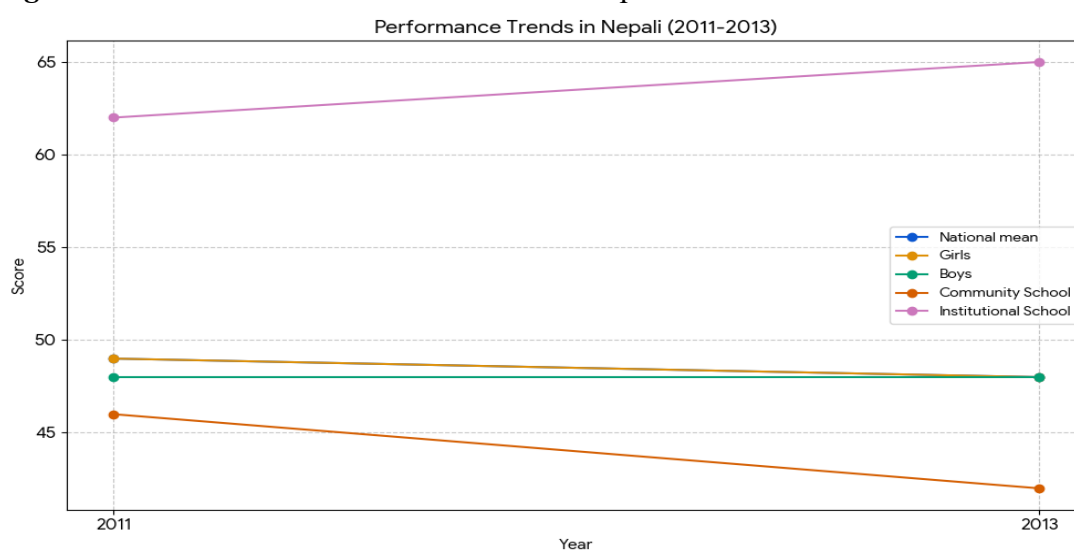
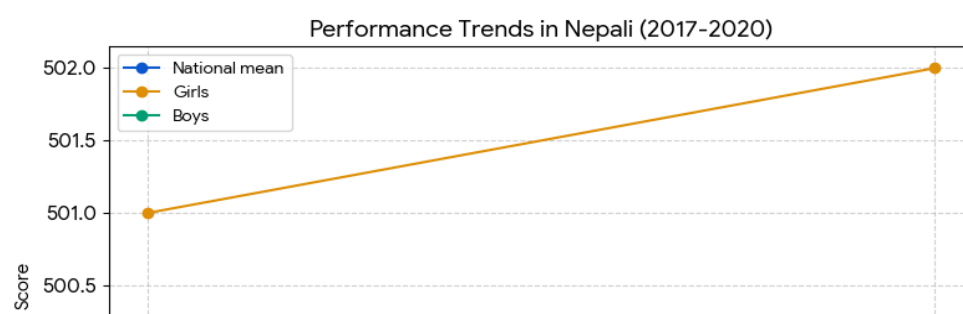
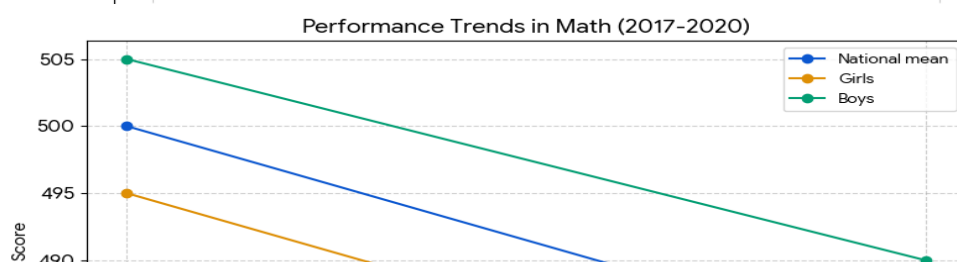
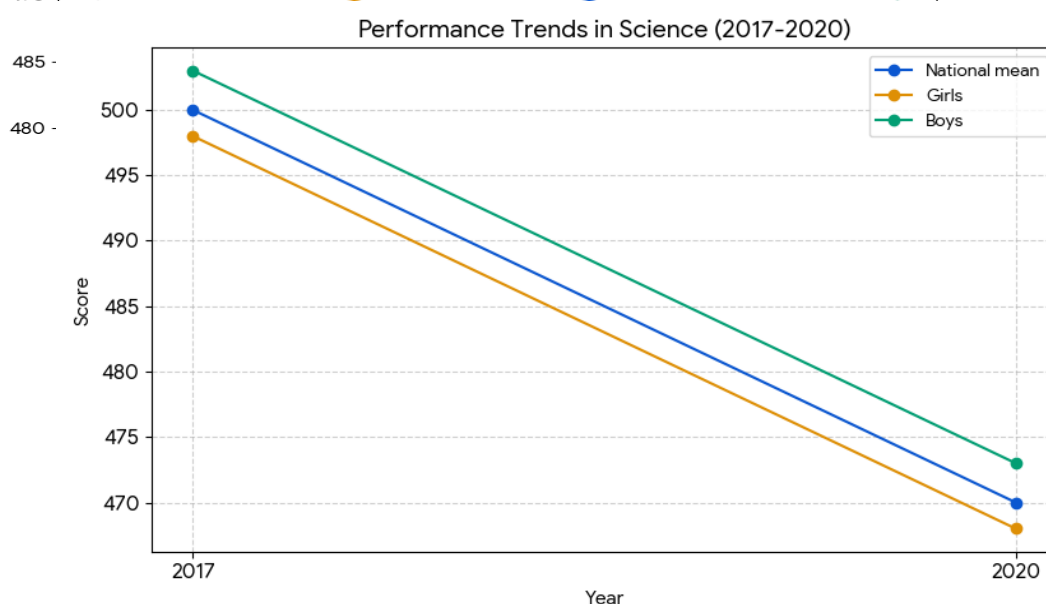


Figure 9: Achievement Trends of Grade 8 in Math

Table 6: Grade 8 (2017-2020)

Year	National mean	Girs	Boys	Community School	Institutional School
2017					
Nepali	500	501	500	495	520
Math	500	495	505	385	547
Science	500	498	503	490	538
2020					
Nepali	500	502	499	No comparable	No comparable
Math	483	478	490	No comparable	No comparable
Science	470	468	473	463	500

**Figure 10:** Achievement Trends of Grade 8 in Nepali**Figure 11:** Achievement Trends of Grade 8 in Maths**Figure 12:** Achievement Trends of Grade 8 in Science

Between 2017 and 2020, the national mean score in Nepali remained stable at 500, while Mathematics declined from 500 to 483 and Science dropped more sharply from 500 to

470. In 2017, gender differences were minimal in Nepali, boys outperformed girls in Mathematics (505 to 495), and boys also scored slightly higher in Science (503 to 498). In 2020, girls slightly outperformed boys in Nepali (502 to 499), but boys continued to perform better in Mathematics (490 to 478) and Science (473 to 468). Community and institutional school results for 2020 in Nepali and Mathematics are not comparable due to reporting in percentage form, limiting school-type analysis for those subjects. However, in Science 2020, institutional schools (500) performed considerably better than community schools (463), maintaining the institutional advantage observed in 2017.

Subject Specific Analysis

Mathematics

The following tables present a wide range of variables that explain trends in achievement in Mathematics across grades, regions, and social groups. Broadly, these variables can be grouped into three clusters: learning domains, geographical and demographic factors, and socio-economic and institutional factors. The first cluster deals with learning domains, focusing on content areas and cognitive levels. Content areas include Algebra, Geometry, Arithmetic, Numeracy, Sets, and Statistics and Data, which highlight the specific strands of mathematics where students' performance has been measured across grades and years. Alongside this, cognitive levels (knowledge, comprehension, application, and higher ability) provide insight into how well students move beyond factual recall to conceptual understanding and problem-solving. Together, these variables indicate not only the mathematical content students can handle but also the cognitive depth at which they perform.

Table 7: *Caste/Ethnicity Grade 3 (2012-2015)*

Group	Grade 3 (2012)	Grade 3 (2015)
Brahmin/Chhetri	50	55.6
Janajati	47.4	48.5
Dalit	40.7	43
Madhesi	44.6	50.1
Minorities	42.1	37.5
Others	46.2	50.4

In Grade 3, students' mean scores between 2012 and 2015 showed mixed trends across caste and ethnic groups. Brahmin/Chhetri students improved from 50 to 55.6, Madhesi from 44.6 to 50.1, and Others from 46.2 to 50.4, showing notable gains. Janajati students increased slightly from 47.4 to 48.5, and Dalit students rose from 40.7 to 43. In contrast, Minority students' scores declined from 42.1 to 37.5. Overall, while most groups showed

improvement, minority students experienced a decline, highlighting persistent disparities among social groups.

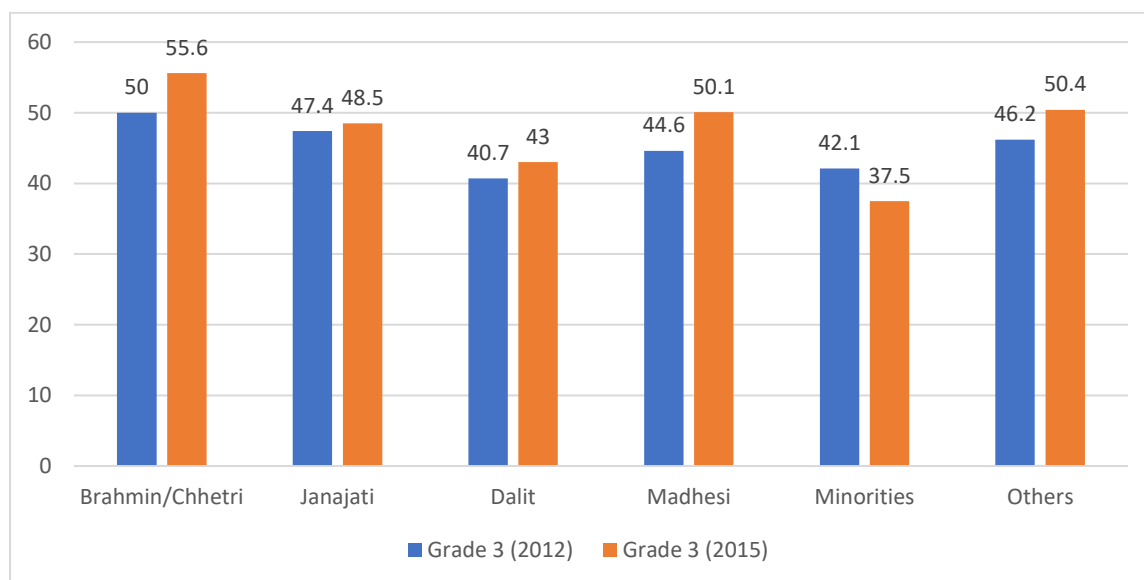


Figure 13: Caste/Ethnicity Grade 3 (2012-2015)

Table 8: Content Area Grade 3 and 5

Content Area	Grade 3 (2012)	Grade 3 (2015)	Grade 5 (2012)	Grade 5 (2015)
Algebra	40	57.4	49.4	46.3
Geometry	60	50.7	56.9	48.5
Arithmetic	61	44.5	54.5	50.5
Numeracy	54	49.3	44.1	47.4

Between 2012 and 2015, Grade 3 showed improvement in Algebra (40 to 57.4), while Geometry, Arithmetic, and Numeracy declined noticeably. In Grade 5, Algebra, Geometry, and Arithmetic scores decreased over the same period, whereas Numeracy showed slight improvement (44.1 to 47.4). Arithmetic experienced the sharpest decline in Grade 3, dropping from 61 to 44.5. Geometry also declined in both grades, indicating consistent weakness in spatial concepts. Overall, the trends suggest mixed performance, with Algebra improving at Grade 3 but general declines across most other content areas.

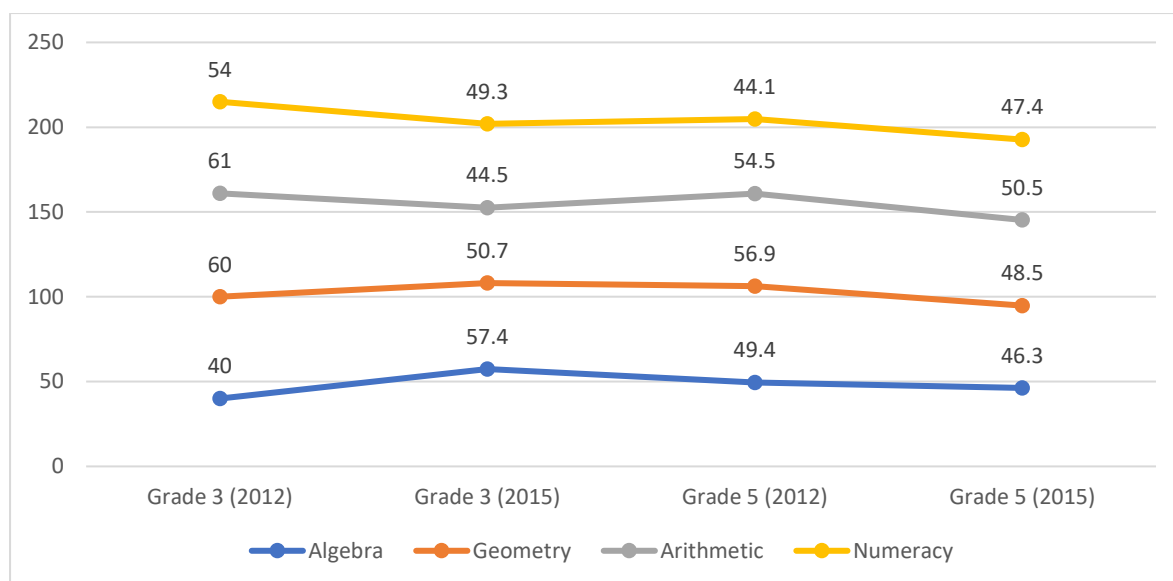


Figure 14: Content Area Grade 3 and 5

Table 9: Caste/Ethnicity Grade 5

Group	Grade 5 (2018)	Grade 5 (2022)
Brahmin/Chhetri	504	489
Janajati	491	485
Others	513	487

In Grade 5, the mean scores of all social groups declined from 2018 to 2022. Brahmin/Chhetri students' scores decreased from 504 to 489. Janajati students also showed a slight decline, from 491 to 485. The "Others" group recorded the highest score in 2018 (513), but it dropped to 487 in 2022. Overall, the data indicate a downward trend in performance across all groups during this period.

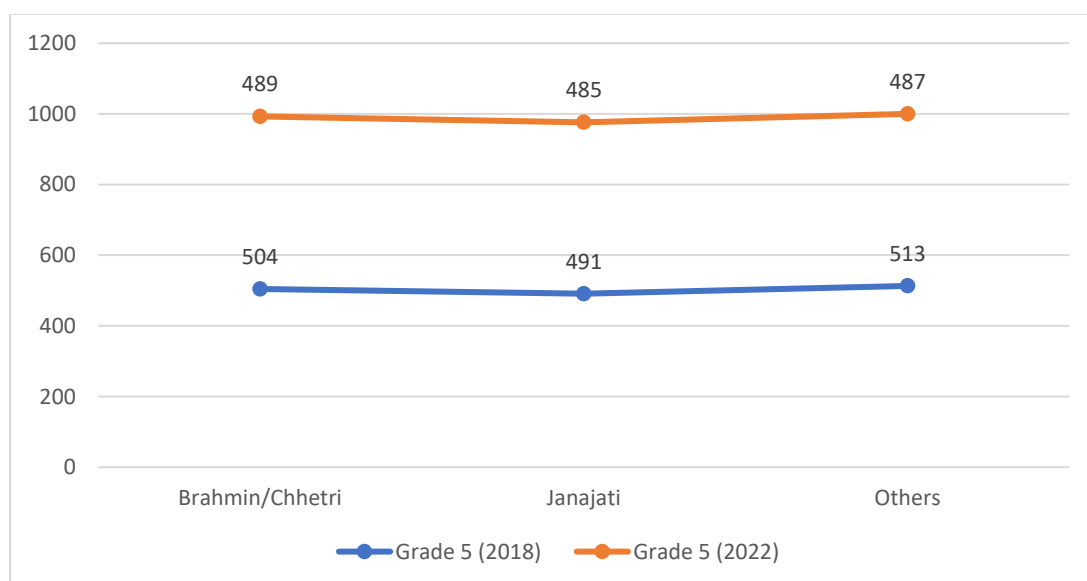
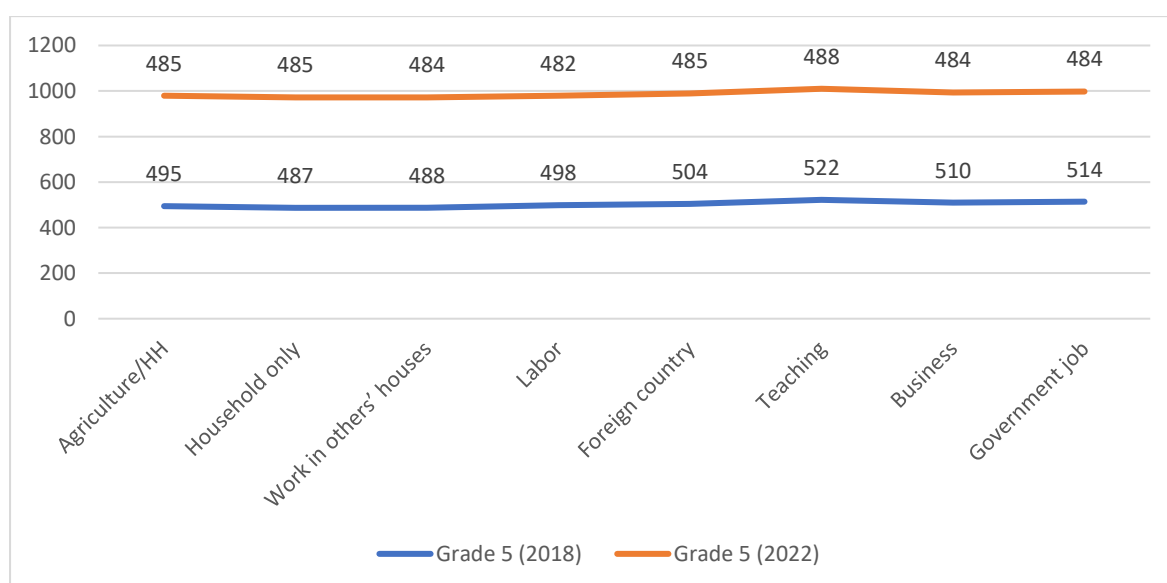


Figure 15: Caste/Ethnicity Grade 5**Table 10:** *Father's Occupation Grade 5*

Occupation	Grade 5 (2018)	Grade 5 (2022)
Agriculture/HH	495	485
Household only	487	485
Work in others' houses	488	484
Labor	498	482
Foreign country	504	485
Teaching	522	488
Business	510	484
Government job	514	484

In Grade 5, the mean scores declined from 2018 to 2022 across all parental occupation categories. Students whose parents were engaged in teaching scored the highest in 2018 (522), but their scores dropped notably to 488 in 2022. Similarly, children of parents working in government jobs and business experienced clear declines from 514 to 484 and from 510 to 484 respectively. Students whose parents worked in agriculture/household, labor, or foreign employment also showed decreases, with scores in 2022 clustering around the mid-480s. Overall, although parental occupation appears related to achievement levels, the 2022 results show a general downward trend regardless of occupation type.

**Figure 16:** Father's Occupation Grade 5**Table 11:** *Mother's Occupation Grade 5*

Occupation	Grade 5 (2018)	Grade 5 (2022)
Agriculture/HH	498	483
Household only	504	486
Work in others' house	487	487
Labor	502	481
Foreign country	496	486
Teaching	525	490
Business	513	485
Government job	520	486

In Grade 5, mean scores declined from 2018 to 2022 across nearly all parental occupation categories. Students whose parents were engaged in teaching achieved the highest score in 2018 (525), but this fell to 490 in 2022. Similarly, children of parents in government jobs and business experienced notable decreases from 520 to 486 and from 513 to 485, respectively. Students from agriculture/household, labor, and foreign employment backgrounds also showed clear declines during this period. Only the group whose parents worked in others' houses remained stable at 487 in both years, while overall results indicate a general downward trend regardless of occupation.

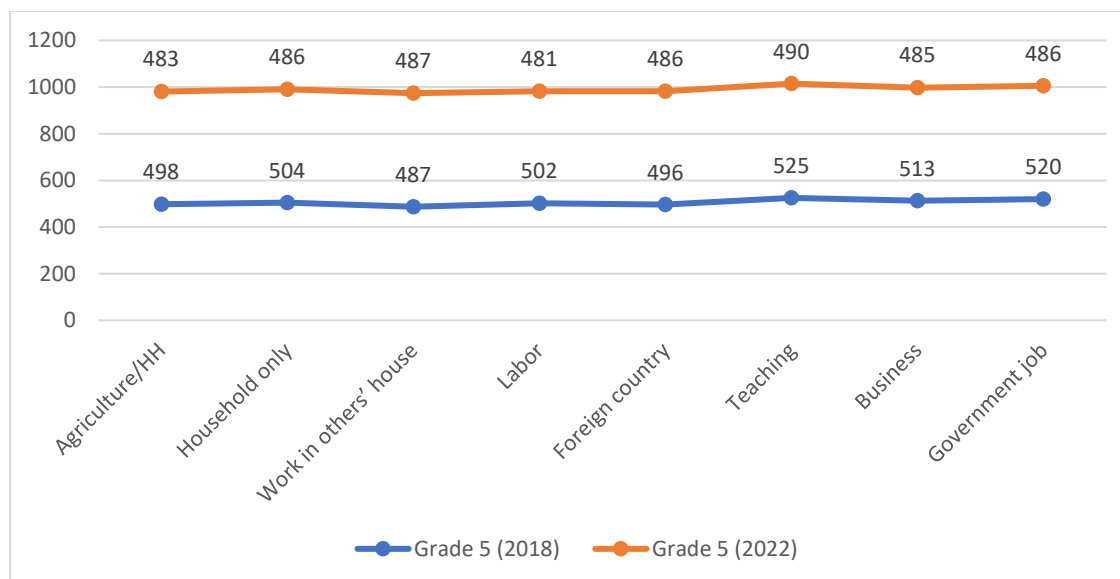


Figure 17: Mother's Occupation Grade 5

Table 12: After-School Support, Grade 5, and 8

Support	Grade 5 (2018)	Grade 5 (2022)	Grade 8 (2017)	Grade 8 (2020)
Father	501	484	497	479
Mother	500	486	492	485

Sibling	499	486	498	481
Tuition	511	488	507	497
Friend	495	483	497	479
None	504	489	502	496

In both Grade 5 and Grade 8, students' mean scores declined from 2018 to 2022 and from 2017 to 2020 across all types of academic support. In Grade 5, students receiving tuition support achieved the highest scores in both years (511 in 2018 and 488 in 2022), although their performance still decreased over time. Similarly, in Grade 8, tuition-supported students scored highest (507 in 2017 and 497 in 2020), despite a noticeable decline. Students supported by fathers, mothers, siblings, or friends also experienced consistent decreases in both grades. Overall, the results indicate a general downward trend in achievement regardless of the source of support, although tuition support is associated with relatively higher performance.

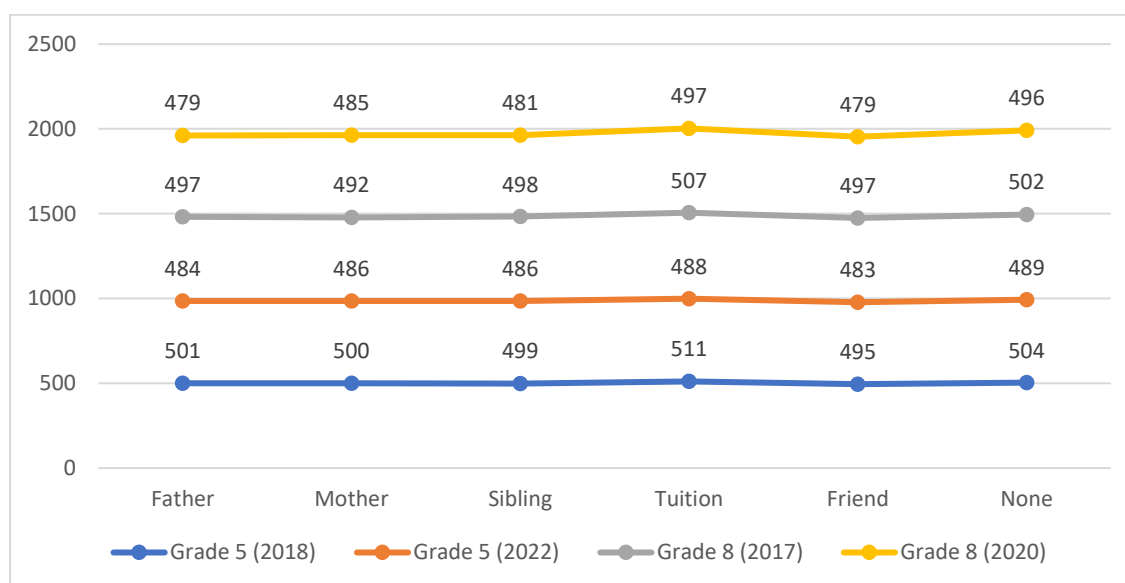


Figure 18: After-School Support, Grade 5 and 8

Table 13: Ecological Zone Grade 5 and 8

Zone	Grade 5 (2012)	Grade 5 (2015)	Grade 8 (2011)	Grade 8 (2013)
Mountain	38.9	42.4	41	21
Hill	41.6	45.1	38	29
Terai	45.4	49.1	44	27
Valley	51.3	57.5	55	53

Between 2012 and 2015, Grade 5 scores improved across all ecological zones, with the Valley showing the highest performance in both years (51.3 to 57.5). The Terai and Hill regions also demonstrated steady progress, while the Mountain zone, although improving, remained the lowest performing at Grade 5. In contrast, Grade 8 scores declined sharply from 2011 to 2013 in the Mountain, Hill, and Terai zones, with the Mountain experiencing the most dramatic drop (41 to 21). The Valley maintained comparatively high performance in Grade 8, with only a slight decline from 55 to 53. Overall, regional disparities are evident, with the Valley consistently outperforming other zones across grades and years.

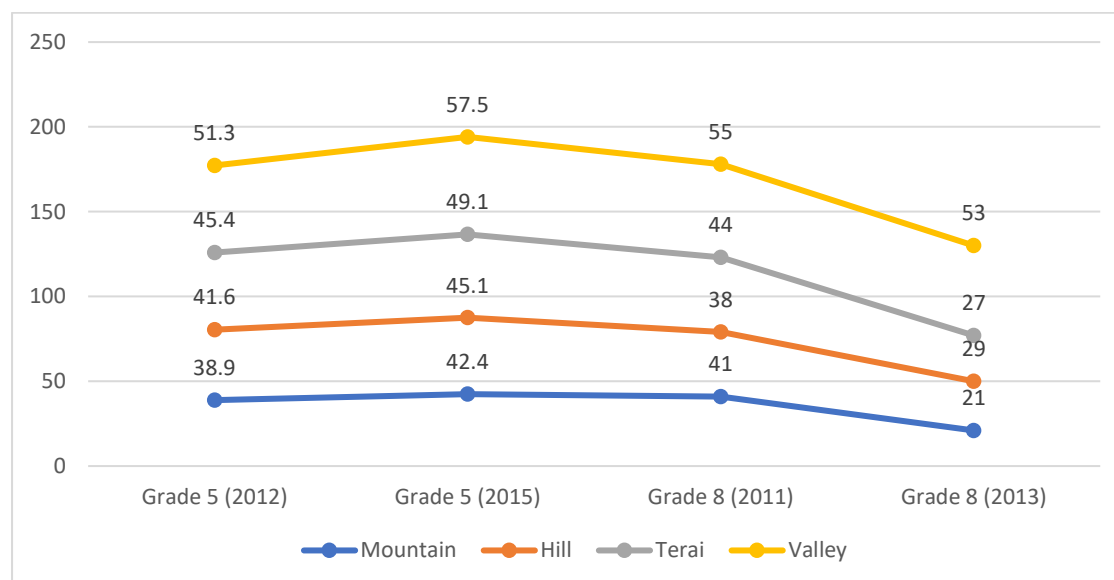


Figure 19: Ecological Zone Grade 5 and 8

Table 14: School Location Grade 5 and 8

Location	Grade 5 (2012)	Grade 5 (2015)	Grade 8 (2011)	Grade 8 (2013)
Rural	43.5	47.4	41	28
Urban	50.9	54.8	48	52

Between 2012 and 2015, Grade 5 scores improved in both rural and urban areas, with urban students consistently outperforming rural students. In Grade 8, however, rural performance declined sharply from 41 in 2011 to 28 in 2013. Urban Grade 8 results showed improvement over the same period, rising from 48 to 52. The rural–urban achievement gap widened notably in Grade 8 by 2013. Overall, urban areas demonstrated stronger and more stable academic performance across grades and years compared to rural areas.

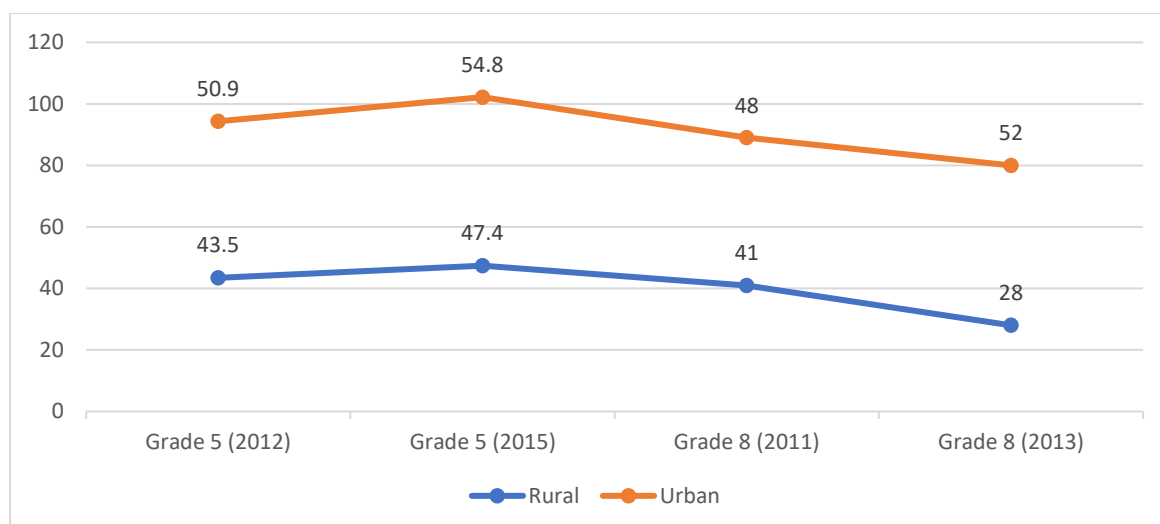


Figure 20: School Location Grade 5 and 8

Table 15: Province (Grade 5 & 8)

Province	2018 (G5)	2022 (G5)	2017 (G8)	2020 (G8)
Koshi	494	486	486	483
Madhesh	521	487	501	477
Bagmati	505	489	520	509
Gandaki	503	490	514	497
Lumbini	486	481	501	485
Karnali	496	475	467	460
Sudur Pashchhim	500	480	480	462

Between 2018 and 2022, Grade 5 scores declined in all provinces, with Madhesh showing the sharpest drop from 521 to 487. In Grade 8, performance also decreased across all provinces from 2017 to 2020, though Bagmati and Gandaki maintained comparatively higher averages. Karnali and Sudur Pashchhim recorded the lowest scores in both grades and years, indicating persistent regional disparities. Bagmati remained one of the strongest performing provinces at Grade 8 despite a slight decline (520 to 509). Overall, the data show a consistent downward trend in student achievement across provinces, with widening performance gaps in some regions.

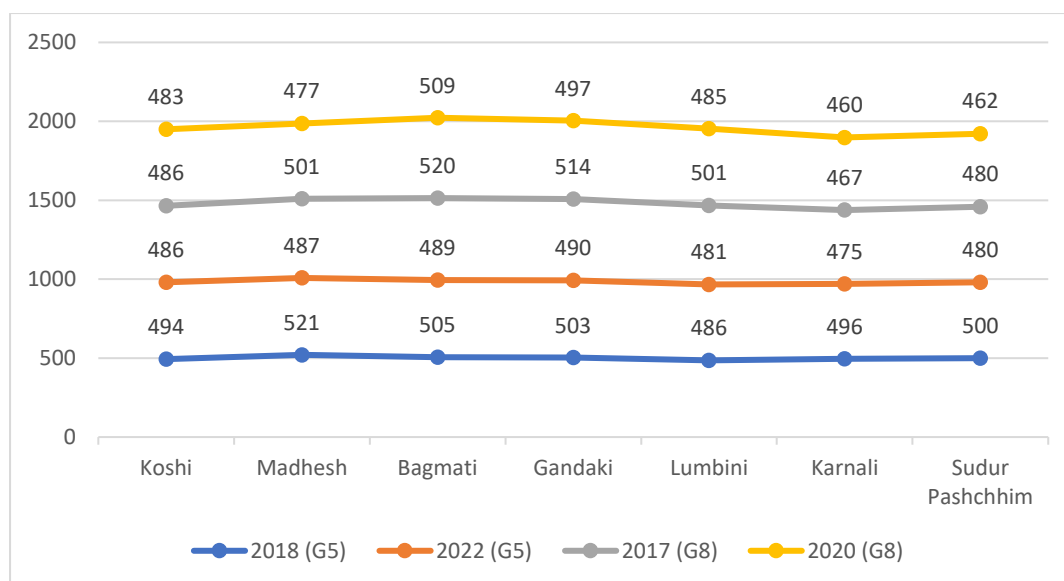


Figure 21: Province (Grade 5 & 8)

Table 16: Development Region Grade 5 and 8

Region	Grade 5 (2012)	Grade 5 (2015)	Grade 8 (2011)	Grade 8 (2013)
Eastern	45.7	46.7	33	25
Central	45.7	47.5	50	30
Western	45	49.2	45	32
Mid-Western	36.9	42.9	39	22
Far-Western	39.5	44.8	37	29
Valley	51.3	57.5	55	53

Between 2012 and 2015, Grade 5 scores improved across all regions, with the Valley showing the highest performance in both years (51.3 to 57.5). The Western and Far-Western regions demonstrated notable gains at Grade 5, while the Mid-Western region, although improving, remained comparatively lower than other regions. In contrast, Grade 8 scores declined sharply from 2011 to 2013 in all regions except the Valley, which experienced only a slight decrease (55 to 53). The Central and Western regions showed particularly large drops at Grade 8, indicating weakening performance at the higher-grade level. Overall, the Valley consistently outperformed other regions, highlighting persistent regional disparities in achievement.

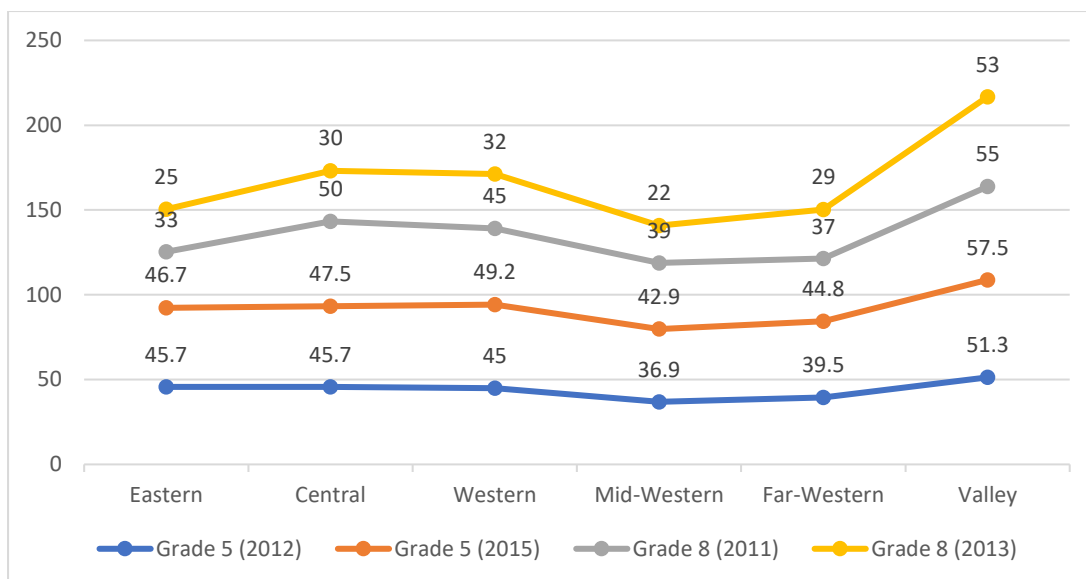


Figure 22: Development Region Grade 5 and 8

Table 17: Gender Grade 5 and 8

Gender	Grade 5 (2018)	Grade 5 (2022)	Grade 8 (2017)	Grade 8 (2020)
Boy	501	485	505	490
Girl	499	484	495	478

In Grade 5, boys scored 501 in 2018, which declined to 485 in 2022, while girls' scores decreased from 499 to 484 during the same period. The gender gap in Grade 5 was very small in both years, showing almost equal performance between boys and girls. In Grade 8, boys scored 505 in 2017 and their score dropped to 490 in 2020. Similarly, girls' performance in Grade 8 declined from 495 in 2017 to 478 in 2020. Overall, the data show a consistent decline in achievement for both boys and girls across grades, with boys slightly outperforming girls in all years.

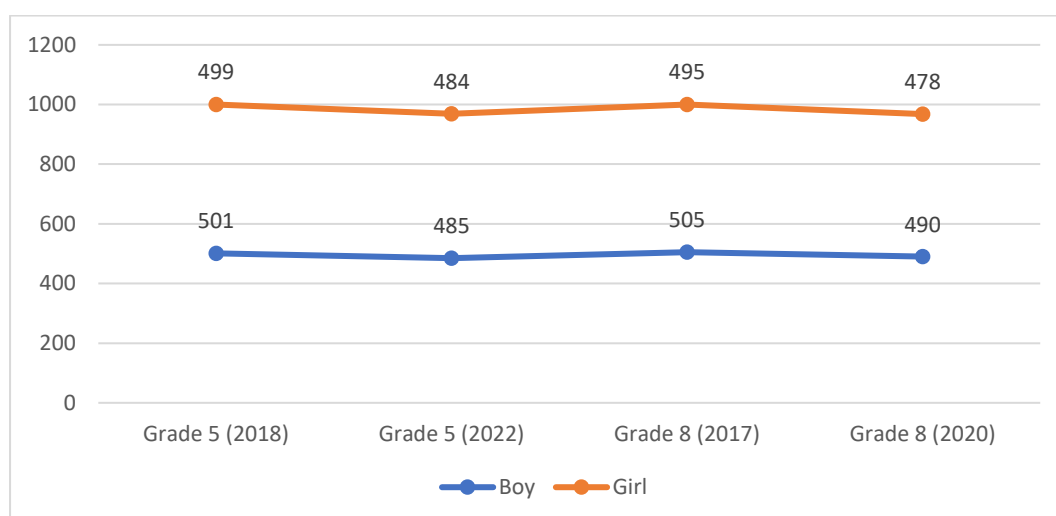
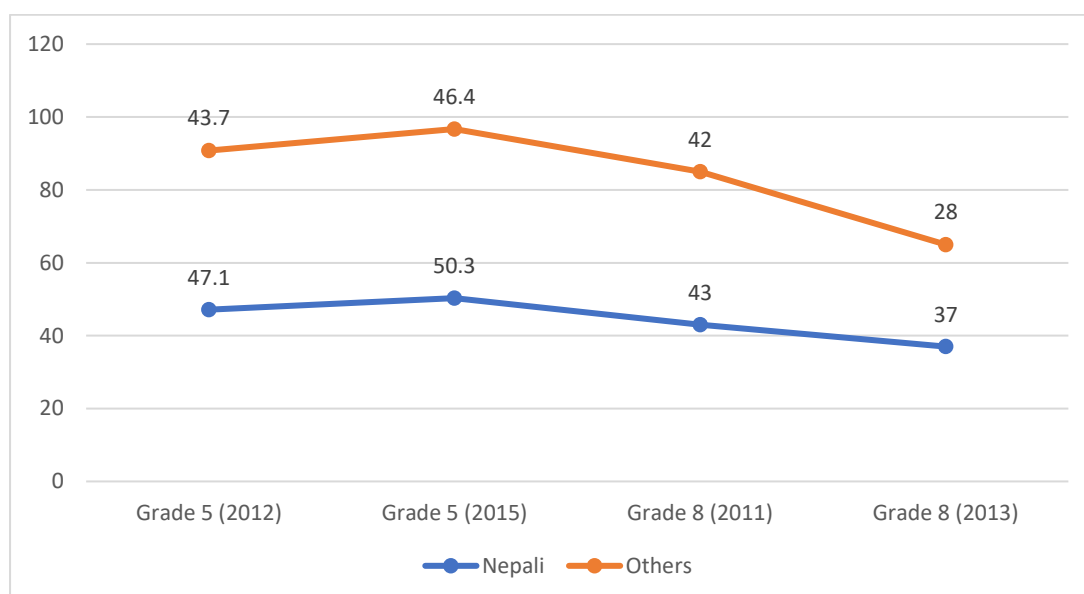


Figure 23: Gender Grade 5 and 8**Table 18:** Home Language, Grades 5 and 8

Language	Grade 5 (2012)	Grade 5 (2015)	Grade 8 (2011)	Grade 8 (2013)
Nepali	47.1	50.3	43	37
Others	43.7	46.4	42	28

In Grade 5, students with Nepali as their language scored 47.1 in 2012, which increased to 50.3 in 2015. Similarly, students from other language backgrounds improved from 43.7 to 46.4 during the same period. However, in Grade 8, Nepali language students' scores declined from 43 in 2011 to 37 in 2013. Students from other language groups experienced a sharper decline in Grade 8, dropping from 42 to 28. Overall, while Grade 5 results show improvement, Grade 8 results indicate a noticeable decrease in performance, especially among other language groups.

**Figure 24:** Home Language, Grades 5 and 8**Table 19:** Home Language, Grades 5 and 8

Language	Grade 5 (2018)	Grade 5 (2022)	Grade 8 (2017)	Grade 8 (2020)
Nepali	500	487	503	483
Others	502	483	493	484

In Grade 5, Nepali language students' mean score declined from 500 in 2018 to 487 in 2022. Similarly, students from other language backgrounds experienced a sharper decrease from 502 to 483 during the same period. In Grade 8, Nepali language students' scores

dropped from 503 in 2017 to 483 in 2020. In contrast, students from other language groups showed a slight decline from 493 to 484 in Grade 8. Overall, the data indicate a downward trend in achievement across both language groups and grades, with particularly notable declines in Grade 5.

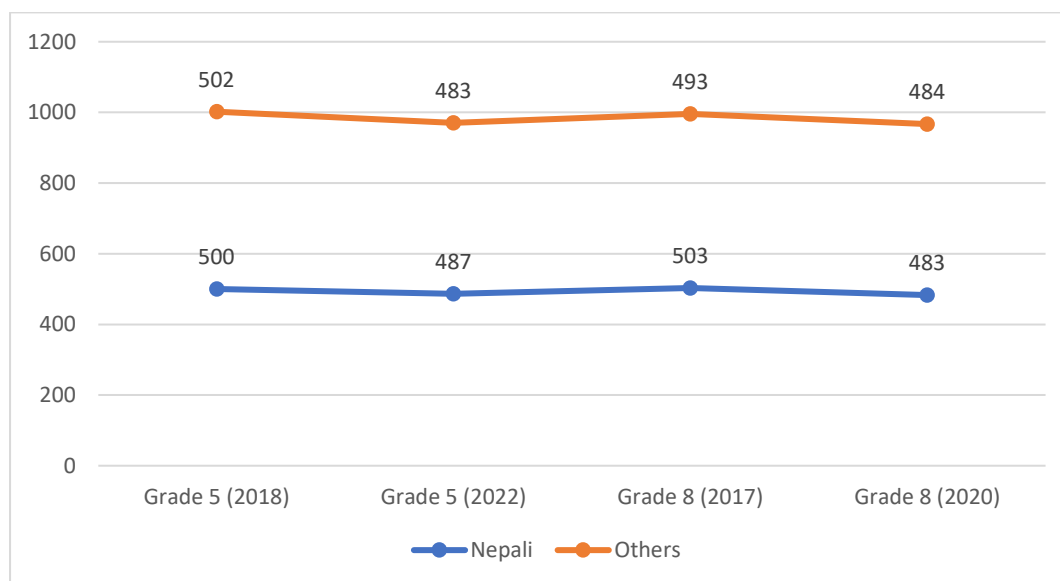


Figure 25: Home Language, Grades 5 and 8

Table 20: Type of School, Grade 5 and 8

School Type	Grade 5 (2012)	Grade 5 (2015)	Grade 8 (2011)	Grade 8 (2013)
Community	41	44.5	39	26
Institutional	54.1	60.8	63	57

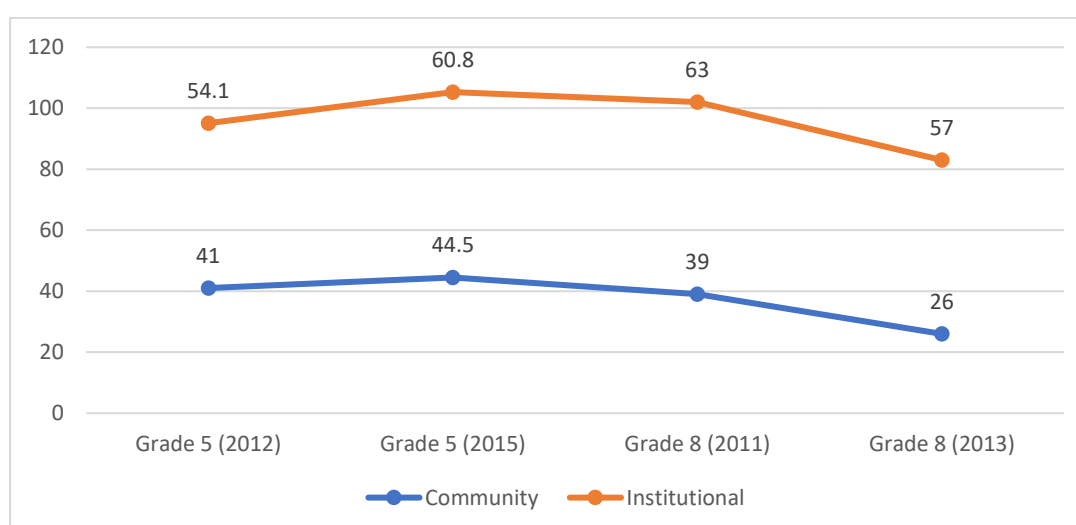


Figure 26: Type of School, Grade 5 and 8

Table 21: Type of School, Grade 5 and 8

School Type	Grade 5 (2018)	Grade 5 (2022)	Grade 8 (2017)	Grade 8 (2020)
Community	493	476	485	474
Institutional	523	497	547	528

In both grades, institutional schools consistently outperformed community schools in all years. In Grade 5, community schools' mean score declined from 493 in 2018 to 476 in 2022, while institutional schools' scores decreased from 523 to 497. In Grade 8, community schools' performance dropped from 485 in 2017 to 474 in 2020. Similarly, institutional schools' scores fell from 547 in 2017 to 528 in 2020. Overall, although both school types experienced a decline over time, a substantial achievement gap remained in favor of institutional schools.

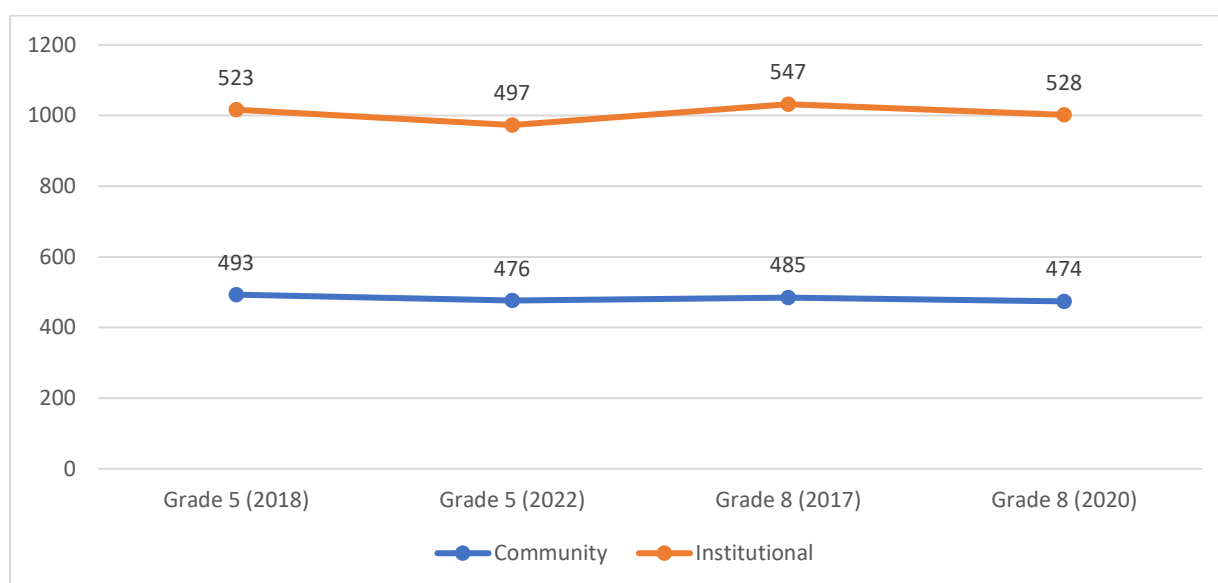


Figure 27: Type of School, Grade 5 and 8

Table 22: Parents' Education – Father Grade 5 and 8

Father's Education	Grade 5 (2018)	Grade 5 (2022)	Grade 8 (2017)	Grade 8 (2020)
Illiterate	492	484	478	465
Literate	495	485	493	477
Up to 10 class	507	485	504	487
Up to 12 class	513	483	518	503
Bachelor	522	485	539	520
Masters+	527	485	546	538

In both Grade 5 and Grade 8, students' achievement generally declined from 2018 to 2022 and from 2017 to 2020, respectively, across all levels of fathers' education. In Grade 5, scores dropped for every group, with particularly notable declines among students whose

fathers had higher education, such as Bachelor's and Master's levels, falling to 485 in 2022 across most categories. In Grade 8, students whose fathers were illiterate or literate experienced clear decreases, from 478 to 465 and 493 to 477, respectively. Although students whose fathers had Bachelor's and Master's degrees continued to score the highest in both years, their scores also declined from 539 to 520 and from 546 to 538. Overall, the data show a positive relationship between fathers' education and student achievement, but with a consistent downward trend over time, regardless of educational level.

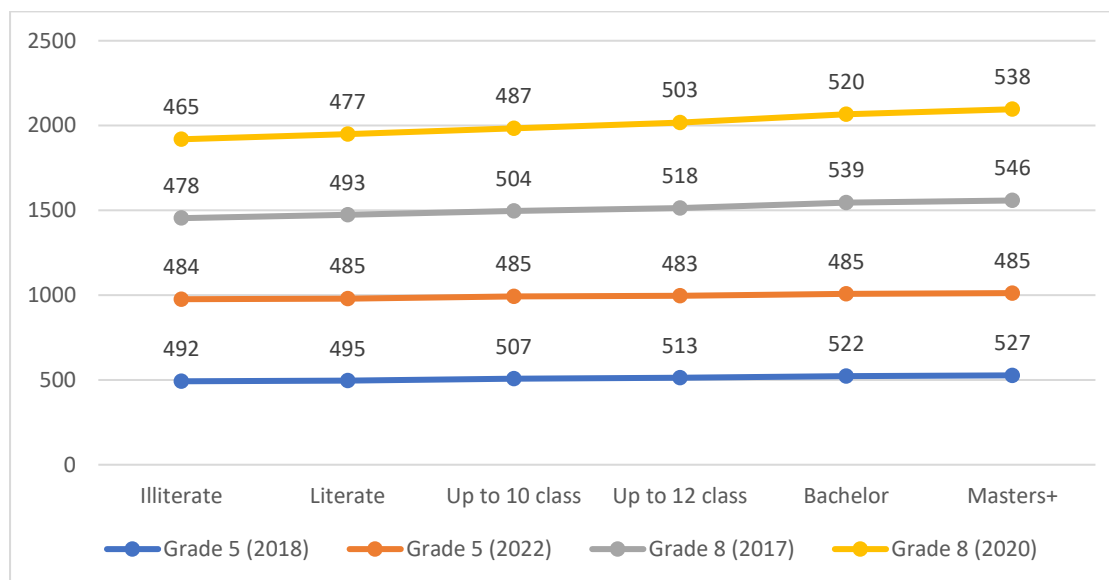


Figure 28: Parents' Education – Father in Grade 5 and 8

Table 23: Parents' Education – Mother (Grades 5 and 8)

Mother's Education	Grade 5 (2018)	Grade 5 (2022)	Grade 8 (2017)	Grade 8 (2020)
Illiterate	493	481	486	471
Literate	499	483	497	480
Up to 10 classes	512	484	515	500
Up to 12 classes	516	491	529	515
Bachelor	522	494	544	526
Masters+	520	498	539	546

In both Grade 5 and Grade 8, students' achievement generally declined over time across most levels of mothers' education. In Grade 5, scores decreased from 2018 to 2022 for all groups, although students whose mothers had higher education (Bachelor and Masters+) continued to achieve higher mean scores than others. In Grade 8, students whose mothers were illiterate or had lower levels of education showed noticeable declines between 2017 and 2020. However, students whose mothers had a Masters+ degree demonstrated improvement, increasing from 539 in 2017 to 546 in 2020. Overall, the data indicate a strong positive

relationship between mothers' education and student achievement, despite the general downward trend in most categories.

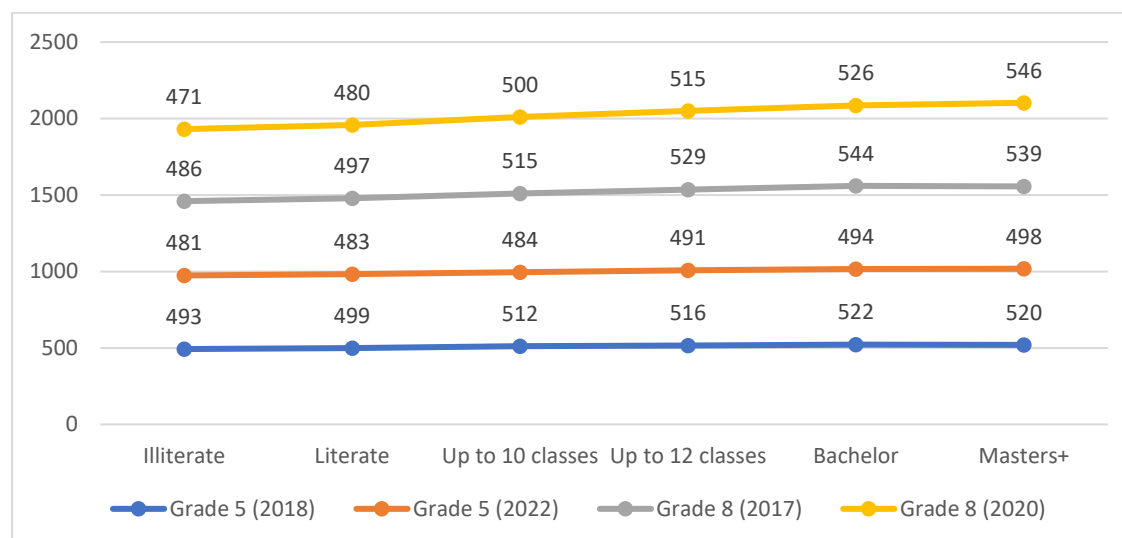


Figure 29: Parents' Education – Mother (Grades 5 and 8)

Table 24: Overall Achievement Grade 8 (2011-2013)

Grade	2011	2013
Grade 8	43	35

The mean score of Grade 8 decreased from 43 in 2011 to 35 in 2013. This indicates a noticeable decline in student achievement over the two years. The sharp drop suggests possible challenges in learning outcomes and instructional effectiveness during that time.

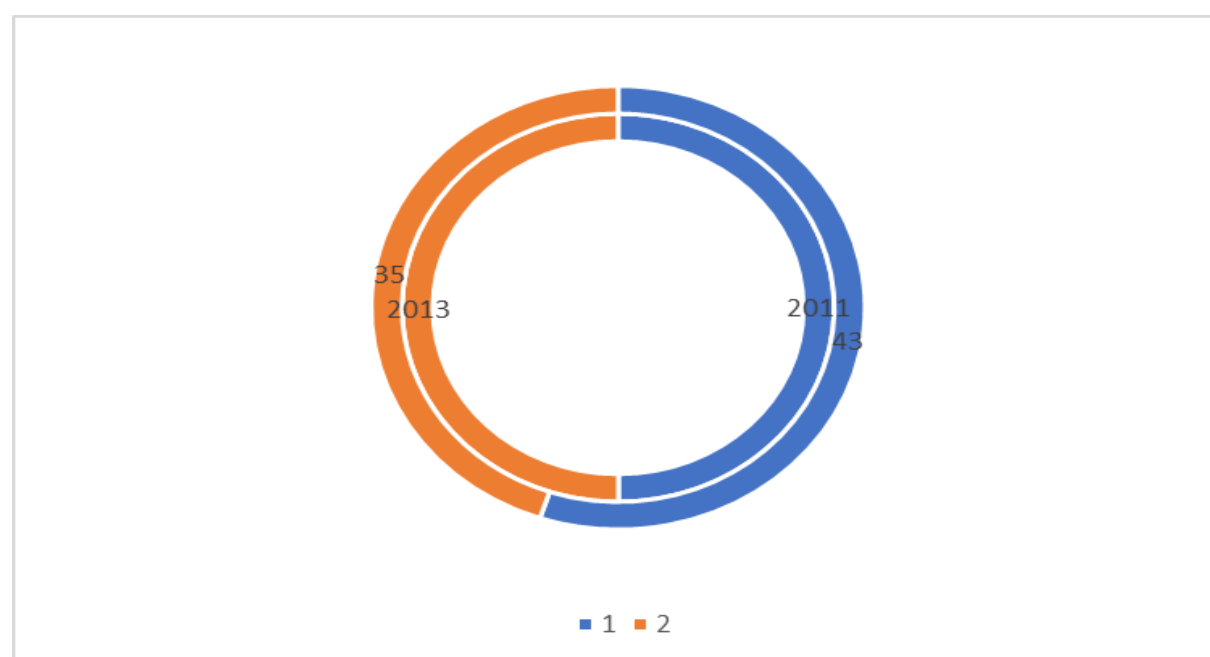
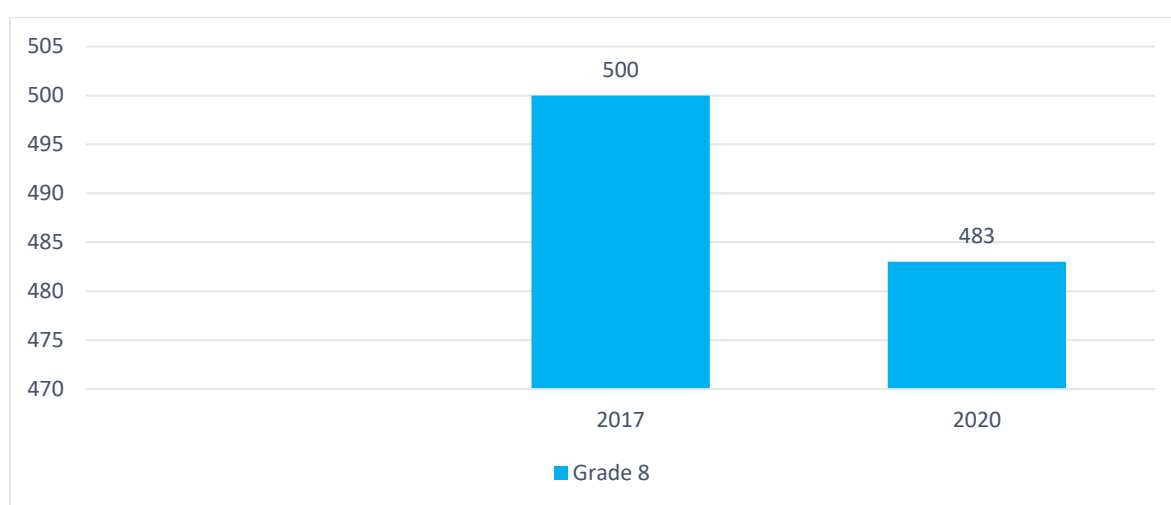


Figure 30: Overall Achievement Grade 8 (2011-2013)**Table 25:** Overall Achievement Grade 8 (2017-2020)

Grade	2017	2020
Grade 8	500	483

The mean score of Grade 8 declined from 500 in 2017 to 483 in 2020. This indicates a noticeable decrease in student achievement over the three years. The downward trend suggests potential challenges affecting learning outcomes during this time.

**Figure 31:** Overall Achievement Grade 8 (2017-2020)**Table 26:** Content Area grade 8

Content Area	Grade 8 (2011)	Grade 8 (2013)
Algebra	48	28
Geometry	37	34
Arithmetic	49	38
Sets	38	37
Statistics & Data	48	38

Between 2011 and 2013, Grade 8 performance declined in all content areas. Algebra showed the sharpest drop, falling from 48 to 28. Arithmetic and Statistics & Data also decreased notably, while Geometry and Sets experienced smaller declines. The overall trend indicates a substantial weakening in mathematical achievement across most domains. These results suggest particular concern in Algebra, which appears to be the most affected content area during this period.

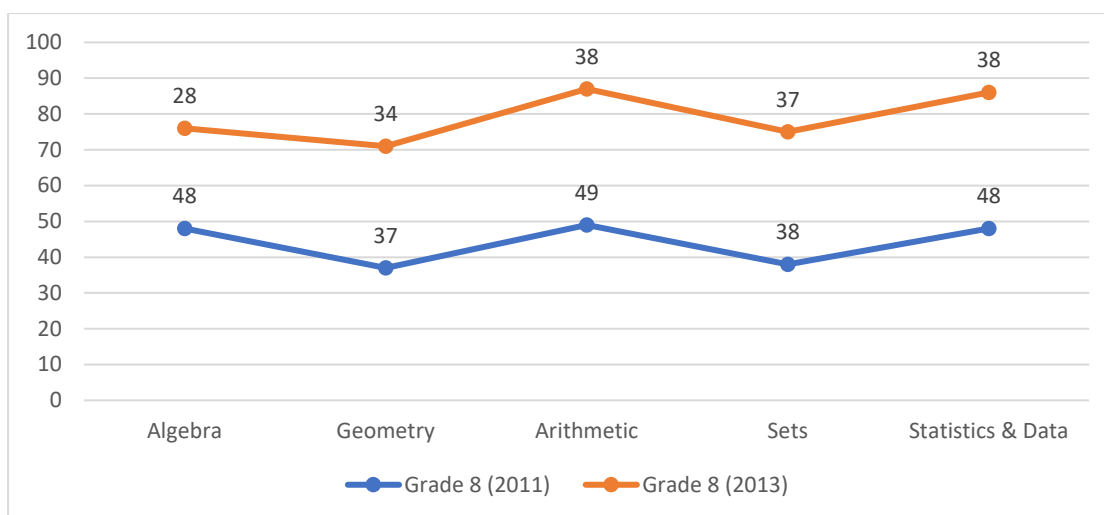


Figure 32: Content Area grade 8

Table 27: Proficiency Levels (Grade 8)

Proficiency Level	2017	2020
Pre-basic	2	2
Basic	13	20
Proficient 1	31	46
Proficient 2	39	24
Proficient 3	14	8
Advanced	1	1

Between 2017 and 2020, the proportion of students at the Basic level increased from 13% to 20%, and Proficient 1 rose substantially from 31% to 46%. However, higher proficiency levels declined, with Proficient 2 dropping from 39% to 24% and Proficient 3 decreasing from 14% to 8%. The Pre-basic and Advanced levels remained unchanged at 2% and 1%, respectively. This shift indicates that more students moved into lower-middle proficiency categories rather than higher achievement bands. Overall, the distribution suggests a downward shift in advanced performance with a concentration of students in the Proficient 1 level by 2020.

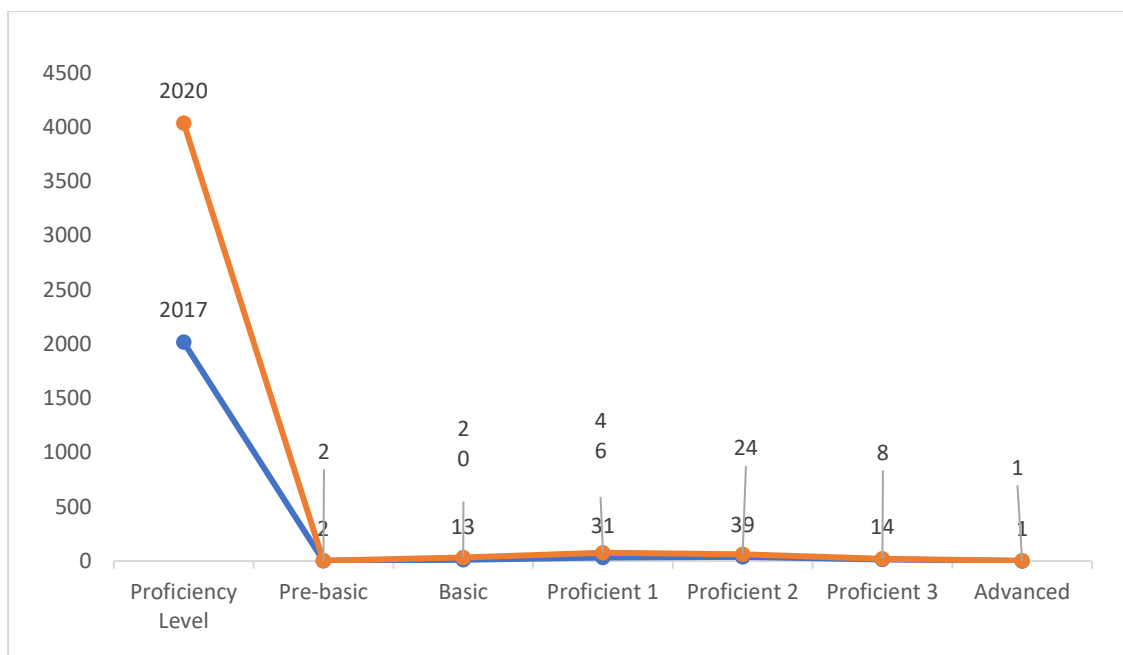


Figure 33: Proficiency Levels (Grade 8)

Table 28: Ecological Zone Grade 8 (2017-2020)

Zone	Grade 8 (2017)	Grade 8 (2020)
Mountain	498	493
Hill	502	501
Terai	498	503

Between 2017 and 2020, Grade 8 scores in the Mountain zone slightly declined from 498 to 493. The Hill region remained almost stable, with only a marginal decrease from 502 to 501. In contrast, the Terai zone showed improvement, increasing from 498 to 503. In 2017, the Hill zone had the highest performance, but by 2020, the Terai surpassed both the Hill and Mountain regions. Overall, regional differences were small, though a modest shift in relative performance is visible over time.

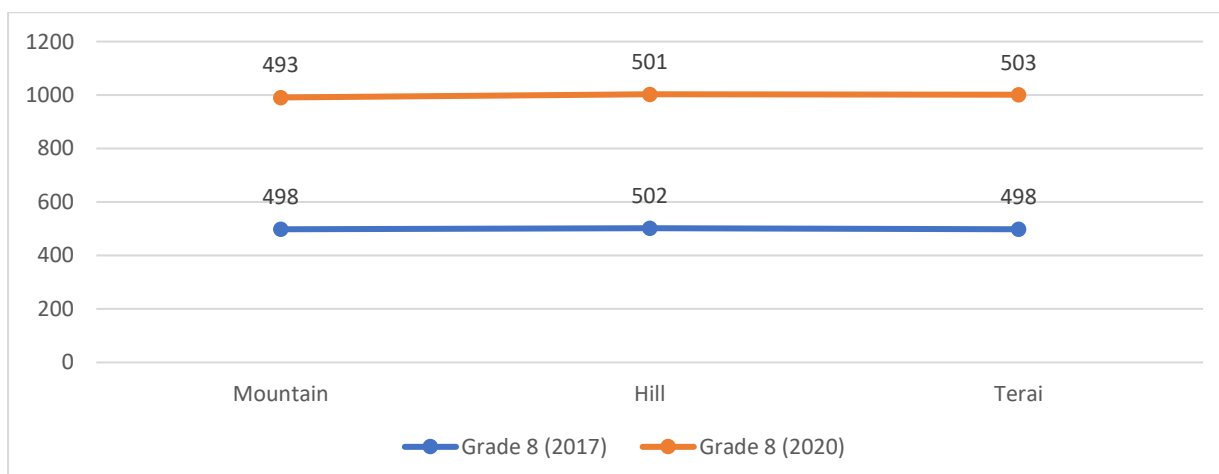
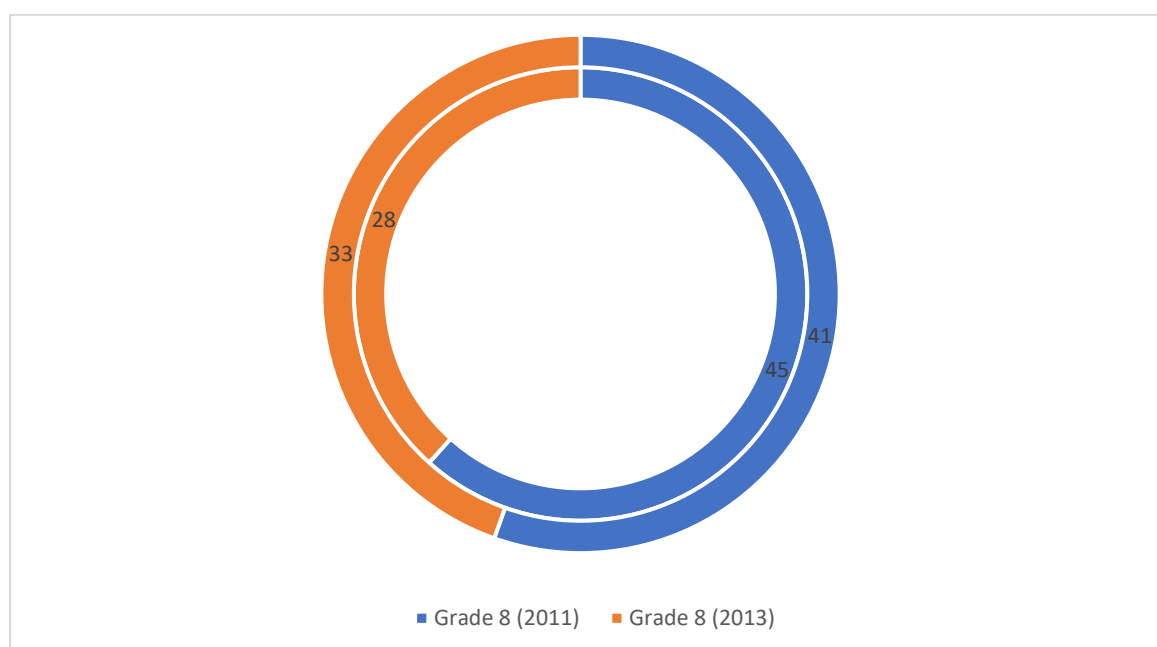


Figure 34: Ecological Zone Grade 8 (2017-2020)**Table 29:** Gender Grade 8 (2011-2013)

Gender	Grade 8 (2011)	Grade 8 (2013)
Boy	45	28
Girl	41	33

Between 2011 and 2013, Grade 8 scores declined for both boys and girls. Boys experienced a sharp drop from 45 to 28, while girls declined from 41 to 33. In 2011, boys outperformed girls, but by 2013, girls performed better than boys. The gender gap reversed over the two-year period due to the larger decline among boys. Overall, the data indicate a decrease in achievement, with a notable shift in gender performance patterns.

**Figure 35:** Gender Grade 8 (2011-2013)**Table 30:** Caste/Ethnicity Grade 8 (2011-2013)

Group	Grade 8 (2011)	Grade 8 (2013)
Brahmin/Chhetri	45	40
Janajati	41	36
Dalit	37	24
Madhesi	49	29
Minorities	40	28

Grade 8, the mean scores of all social groups declined from 2011 to 2013. Brahmin/Chhetri students' scores decreased from 45 to 40, while Janajati students' scores dropped from 41 to 36. Dalit students experienced a sharp decline from 37 to 24, showing a significant learning loss. Madhesi students' performance fell markedly from 49 to 29,

representing one of the largest declines among the groups. Similarly, Minorities' scores decreased from 40 to 28, indicating a widening achievement gap across social groups.

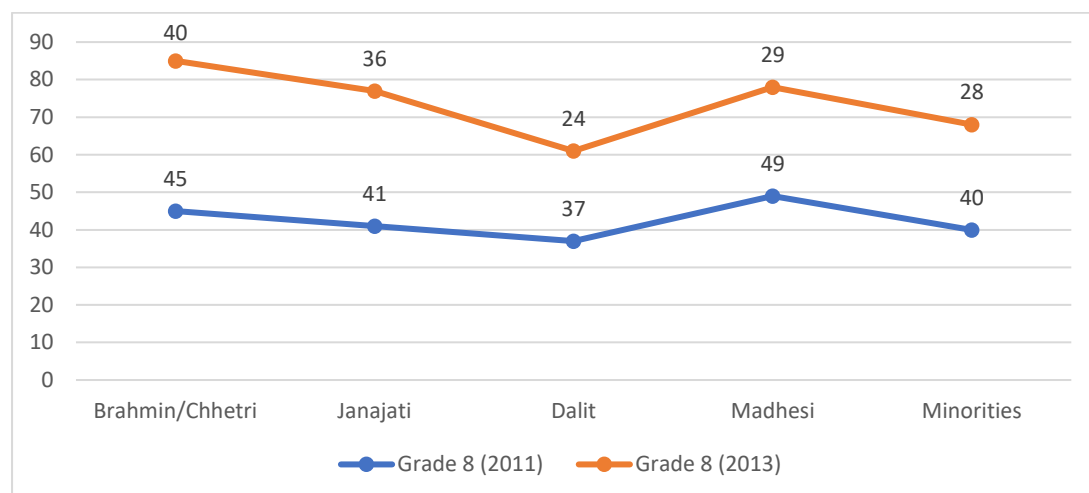


Figure 36: Caste/Ethnicity Grade 8 (2011-2013)

Table 31: Caste/Ethnicity Grade 8

Group	Grade 8 (2017)	Grade 8 (2020)
Brahmin/Chhetri	508	508
Janajati	498	495
Dalit	482	489
Others	500	509

In Grade 8, the performance trends varied among social groups between 2017 and 2020. Brahmin/Chhetri students maintained the same mean score of 508 in both years. Janajati students' scores slightly decreased from 498 to 495. In contrast, Dalit students showed improvement, increasing from 482 to 489. The "Others" group also improved noticeably, rising from 500 to 509, recording the highest score in 2020.

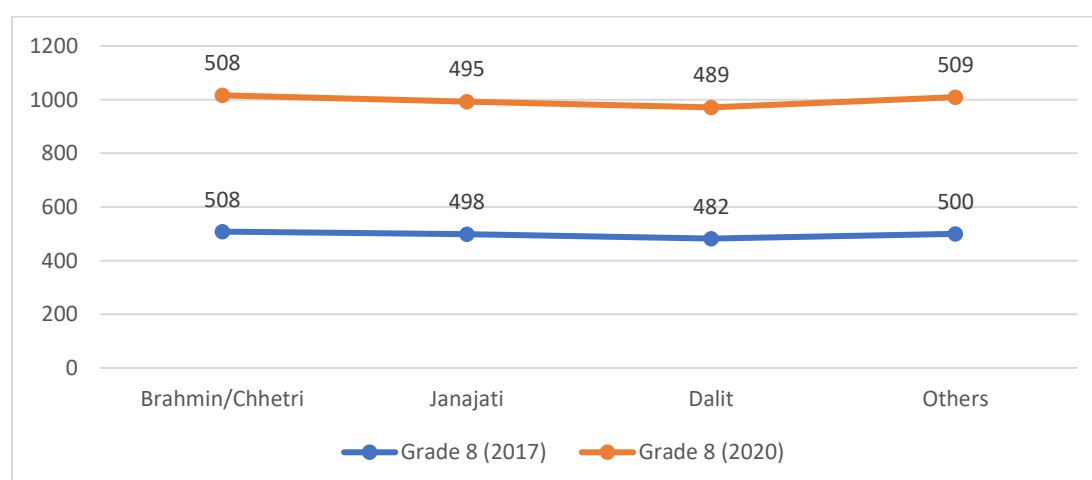
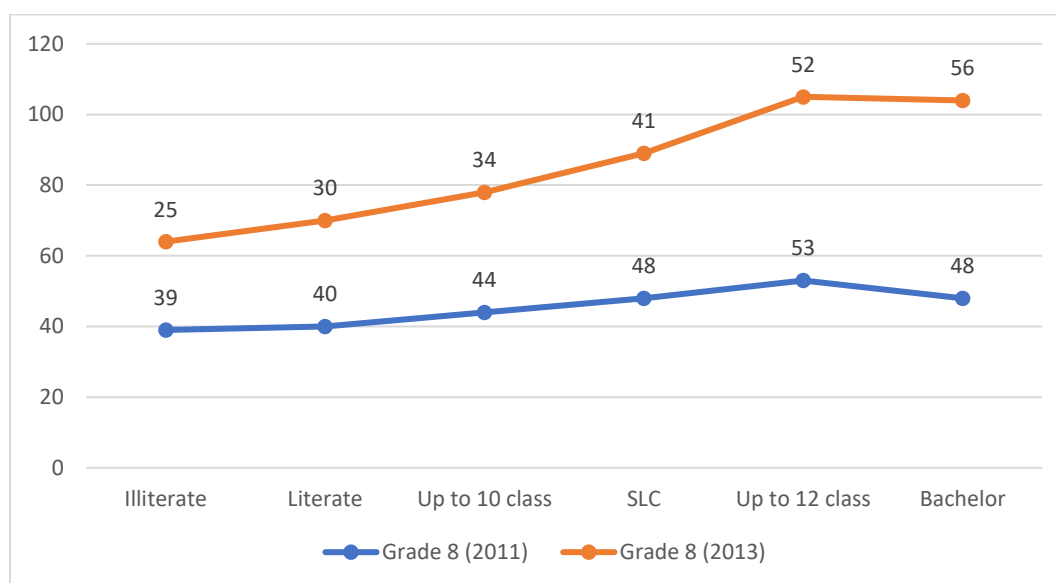


Figure 37: Caste/Ethnicity Grade 8

Table 32: Parents' Education – Father, Grade 8

Father's Education	Grade 8 (2011)	Grade 8 (2013)
Illiterate	39	25
Literate	40	30
Up to 10 class	44	34
SLC	48	41
Up to 12 class	53	52
Bachelor	48	56

In Grade 8, students whose fathers were illiterate scored 39 in 2011, which declined sharply to 25 in 2013. Students with literate fathers also experienced a drop from 40 to 30, and those whose fathers studied up to Grade 10 declined from 44 to 34. Similarly, students whose fathers had completed SLC saw their scores fall from 48 to 41. In contrast, students whose fathers studied up to Grade 12 maintained relatively stable performance, decreasing only slightly from 53 to 52. Notably, students whose fathers held a bachelor's degree showed significant improvement, increasing from 48 in 2011 to 56 in 2013, indicating a positive association between higher parental education and student achievement.

**Figure 38: Parents' Education – Father, Grade 8****Table 33: Parents' Education – Mother, Grade 8**

Mother's Education	Grade 8 (2011)	Grade 8 (2013)
Illiterate	42	28
Literate	44	33
Up to 10 classes	47	42
SLC	50	48

In Grade 8, students whose mothers were illiterate scored 42 in 2011, which declined sharply to 28 in 2013. Students with literate mothers also experienced a decrease from 44 to 33 during the same period. Those whose mothers had studied up to Grade 10 showed a smaller decline, from 47 to 42. Similarly, students whose mothers had completed SLC saw their scores fall slightly from 50 to 48. Overall, the data indicate that higher maternal education is associated with better student achievement, although performance declined across all groups between 2011 and 2013.

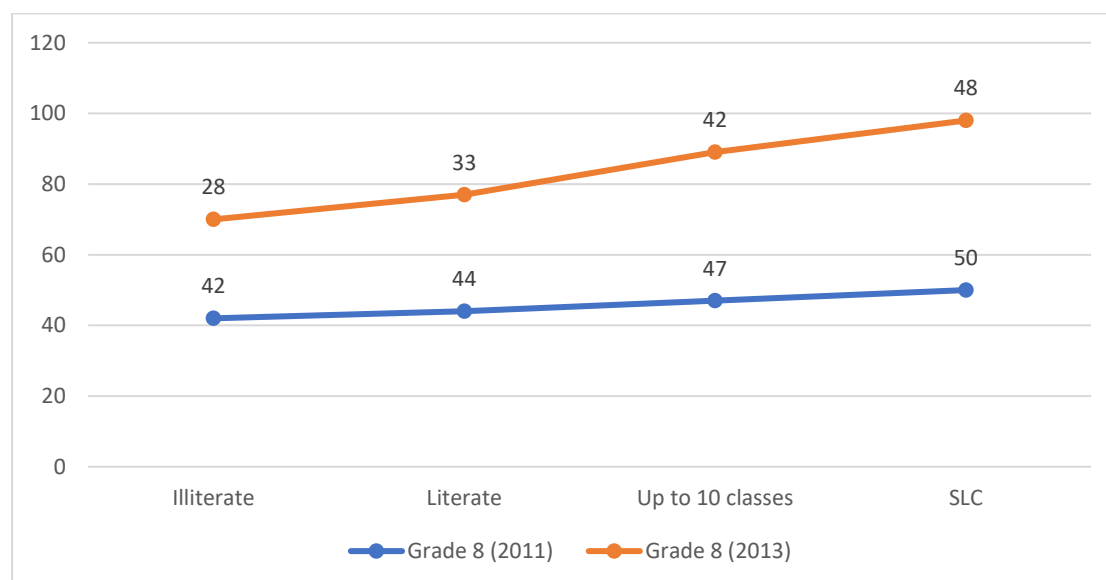


Figure 39: Parents' Education – Mother, Grade 8

Table 34: Father's Occupation, Grade 8

Occupation	Grade 8 (2011)	Grade 8 (2013)
Agriculture/HH	39	26
Teaching	39	41
Business	39	43
Government job	41	48

In Grade 8, students whose parents were engaged in agriculture or household work experienced a sharp decline in mean scores from 39 in 2011 to 26 in 2013. In contrast, students whose parents were in teaching showed improvement, increasing from 39 to 41. Similarly, children of parents involved in business improved from 39 to 43 during the same period. The most notable gain was observed among students whose parents held government jobs, with scores rising from 41 to 48. Overall, the data suggest that students from professional occupational backgrounds showed improved performance, while those from agriculture/household backgrounds faced a significant decline.

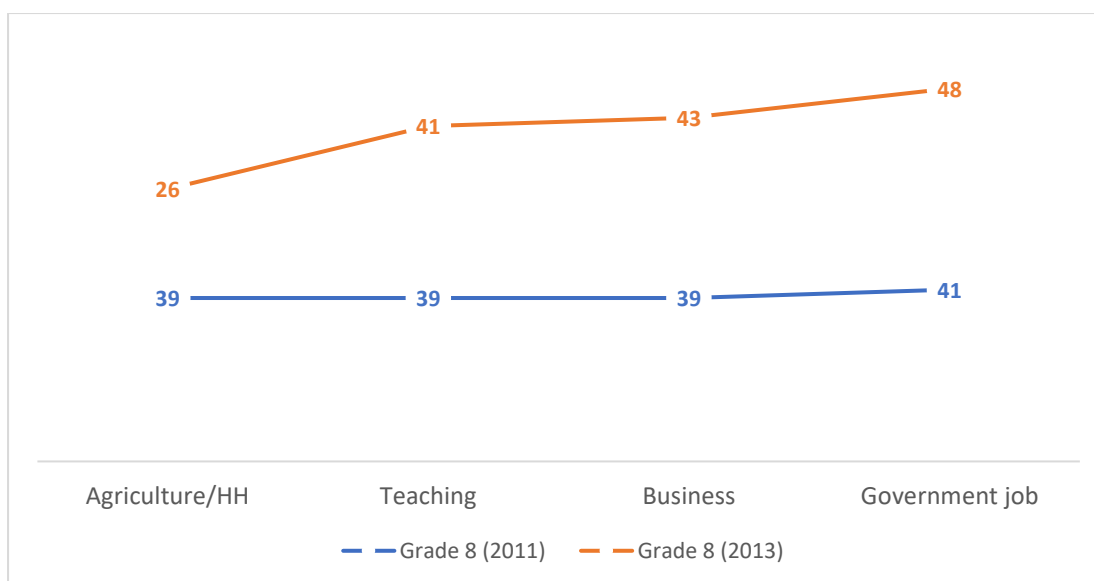


Figure 40: Father's Occupation, Grade 8

Table 35: Father's Occupation Grade 8

Occupation	Grade 8 (2017)	Grade 8 (2020)
Agriculture/HH	484	470
Household only	479	461
Work in others' houses	480	464
Labor	496	483
Foreign country	502	483
Teaching	520	507
Business	518	499
Government job	517	501
Other job	524	509

In Grade 8, the mean scores declined from 2017 to 2020 across all parental occupation categories. Students whose parents were engaged in agriculture/household work saw a decrease from 484 to 470, while those involved only in household work dropped from 479 to 461. Similarly, children of laborers, foreign-employed parents, and those working in others' houses also experienced noticeable declines. Although students whose parents were in teaching, business, government jobs, and other professional occupations continued to achieve comparatively higher scores, their performance also decreased during this period. Overall, despite occupational differences in achievement levels, the data show a consistent downward trend between 2017 and 2020.

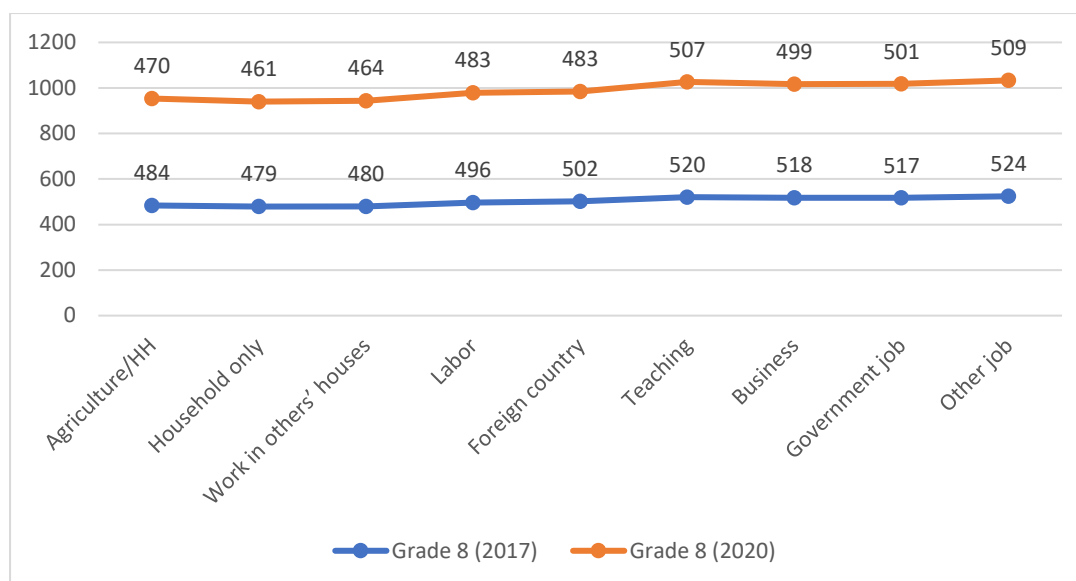


Figure 41: Father's Occupation Grade 8

Table 36: Mother's Occupation, Grade 8

Occupation	Grade 8 (2011)	Grade 8 (2013)
Agriculture/HH	40	29
Teaching	51	46
Business	53	46
Government job	46	54

In Grade 8, students whose parents were engaged in agriculture or household work experienced a decline in mean scores from 40 in 2011 to 29 in 2013. Similarly, students whose parents were in teaching saw a decrease from 51 to 46, and those in business dropped from 53 to 46. In contrast, students whose parents held government jobs showed a significant improvement, increasing from 46 to 54. Overall, while most occupational groups recorded declining performance, children of government employees demonstrated notable progress.

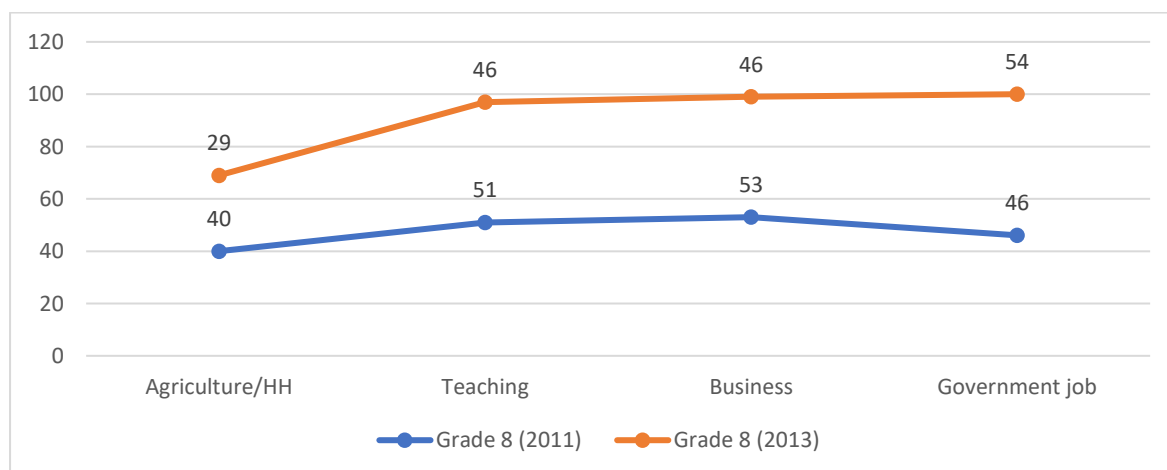
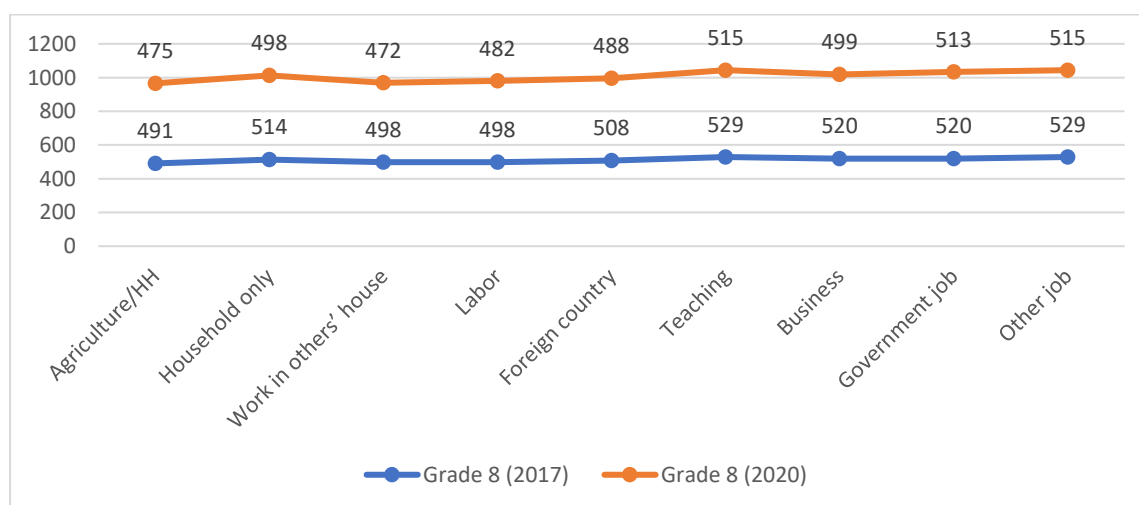


Figure 42: Mother's Occupation, Grade 8

Table 37: Mother's Occupation Grade 8

Occupation	Grade 8 (2017)	Grade 8 (2020)
Agriculture/HH	491	475
Household only	514	498
Work in others' house	498	472
Labor	498	482
Foreign country	508	488
Teaching	529	515
Business	520	499
Government job	520	513
Other job	529	515

In Grade 8, students' mean scores declined from 2017 to 2020 across all parental occupation categories. Those whose parents were engaged in agriculture/household work dropped from 491 to 475, while household-only and work-in-others' house categories also showed notable decreases. Students from labor and foreign employment backgrounds experienced moderate declines during the same period. Although children of parents in teaching, business, government jobs, and other professional occupations continued to record comparatively higher scores, their performance also decreased between 2017 and 2020. Overall, despite occupational differences in achievement levels, the data reveal a consistent downward trend in Grade 8 performance.

**Figure 43: Mother's Occupation, Grade 8****Table 38: After-School Support, Grade 8**

Support	Grade 8 (2011)	Grade 8 (2013)
Father	42	35
Mother	45	34
Sibling	42	35
Teacher	43	33
Tuition	48	38
None	42	36

In Grade 8, students receiving support from all sources experienced a decline in mean scores from 2011 to 2013. Those supported by fathers saw their scores drop from 42 to 35, while support from mothers decreased from 45 to 34. Similarly, students helped by siblings and teachers recorded declines from 42 to 35 and from 43 to 33 respectively. Even students receiving tuition support experienced a decrease from 48 to 38, although they had the highest scores in both years. Overall, the data indicate a general downward trend in achievement regardless of the type of academic support received.

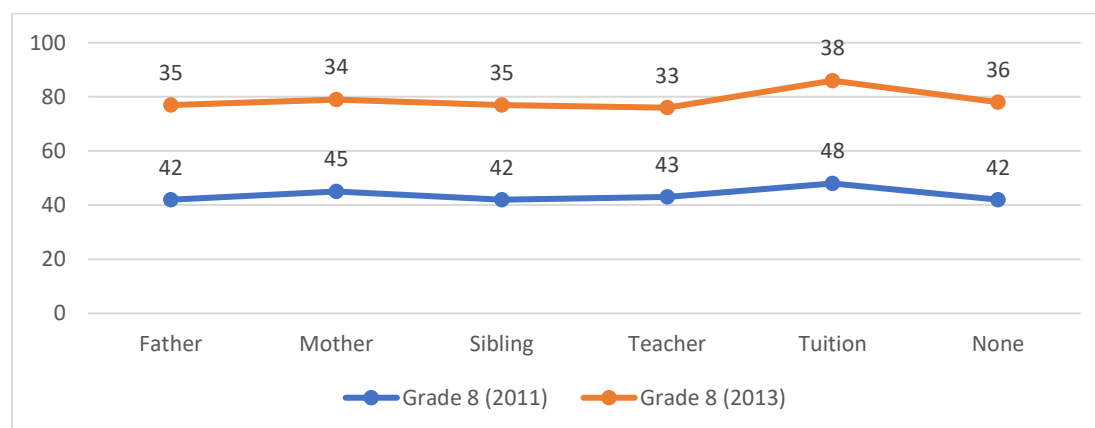


Figure 44: After-School Support, Grade 8

Table 39: Cognitive Level Grades 3, 5 and 8

Cognitive Level	Grade 3 (2012)	Grade 3 (2015)	Grade 5 (2012)	Grade 5 (2015)	Grade 8 (2011)	Grade 8 (2013)
Knowledge	59	55.6	64.6	57	68	46
Comprehension	64	44.9	58.8	51.6	55	42
Application	53	36.3	51.8	37.3	38	35
Higher Ability	53	35.9	40.1	36.7	21	25

Across grades and years, performance at the Knowledge level generally declined, with noticeable drops in Grade 8 (68 to 46) and moderate decreases in Grades 3 and 5. Comprehension scores also fell substantially, particularly in Grade 3 (64 to 44.9) and Grade 8 (55 to 42), indicating weakening conceptual understanding. Application-level achievement showed consistent decline in all grades, with Grade 3 and Grade 5 experiencing sharp reductions between 2012 and 2015. Higher Ability skills remained comparatively low across grades, though Grade 8 showed slight improvement from 21 to 25 between 2011 and 2013. Overall, the data suggest a broad decline in lower and middle cognitive skills over time, with higher-order thinking remaining the weakest area across grades.

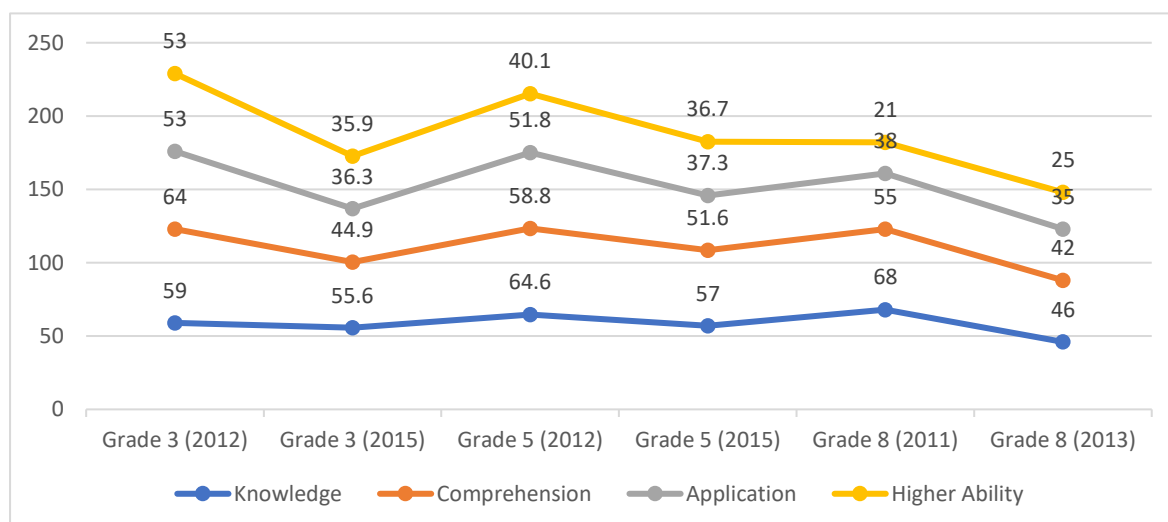


Figure 45: Cognitive Level Grades 3, 5, and 8

Science

The following tables present a wide range of variables that influence student achievement in Science, and they can be meaningfully grouped into three broad clusters. The first cluster relates to regional, demographic, and linguistic variables. These include province, gender, and home language. Provincial results help illustrate how geographic and developmental differences across the country influence student outcomes, with certain regions consistently outperforming others. Gender captures whether boys and girls are learning Science at the same level or if gaps persist between them. Home language reflects students' linguistic background, distinguishing those who use Nepali at home from those who speak other languages. Together, these variables highlight structural inequalities tied to geography, identity, and cultural background that influence Science achievement.

Table 40: Science Achievement by Province

Province	Grade8 (2017)	Grade8 (2020)	Grade10 (2019)	Grade10 (2023)
Koshi	483	472	491	497
Madhesh	488	444	484	496
Bagmati	529	492	525	530
Gandaki	518	485	515	508
Lumbini	497	475	507	504
Karnali	484	454	482	487
Sudur Pashchhim	488	463	486	488

In Grade 8, all provinces experienced a decline in mean scores from 2017 to 2020, with Bagmati remaining the highest-performing province (529 to 492) and Madhesh showing the largest drop (488 to 444). Koshi, Gandaki, Lumbini, Karnali, and Sudur Pashchhim also recorded decreases, though the declines were less severe than in Madhesh. In Grade 10, scores generally improved or recovered between 2019 and 2023, with Bagmati again leading at 530 and Madhesh showing a strong recovery to 496. Koshi, Lumbini, and Karnali saw moderate improvements, while Gandaki and Sudur Pashchhim showed smaller gains.

Overall, the data indicate initial declines in Grade 8 followed by partial recovery in Grade 10 across most provinces, with Bagmati consistently performing at the top.

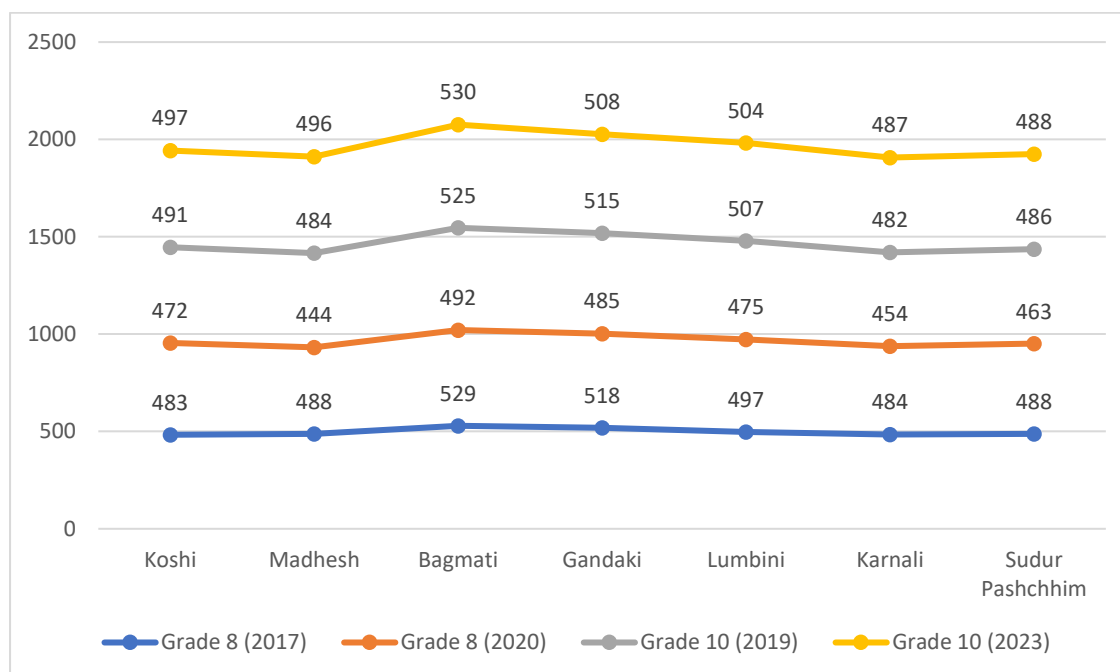


Figure 46: Science Achievement by Province

Table 41: Science Achievement by Gender

Gender	Grade 8 (2017)	Grade 8 (2020)	Grade 10 (2019)	Grade 10 (2023)
Boy	503	473	509	512
Girl	498	468	493	499

In both Grade 8 and Grade 10, boys consistently scored higher than girls across all years. In Grade 8, boys' mean score declined from 503 in 2017 to 473 in 2020, while girls' scores dropped from 498 to 468. In Grade 10, both boys and girls showed improvement compared to Grade 8, with boys increasing from 509 in 2019 to 512 in 2023, and girls rising from 493 to 499. The gender gap remained, with boys outperforming girls in all assessments. Overall, the data show a dip in Grade 8 followed by a recovery in Grade 10, while boys maintained a consistent advantage.

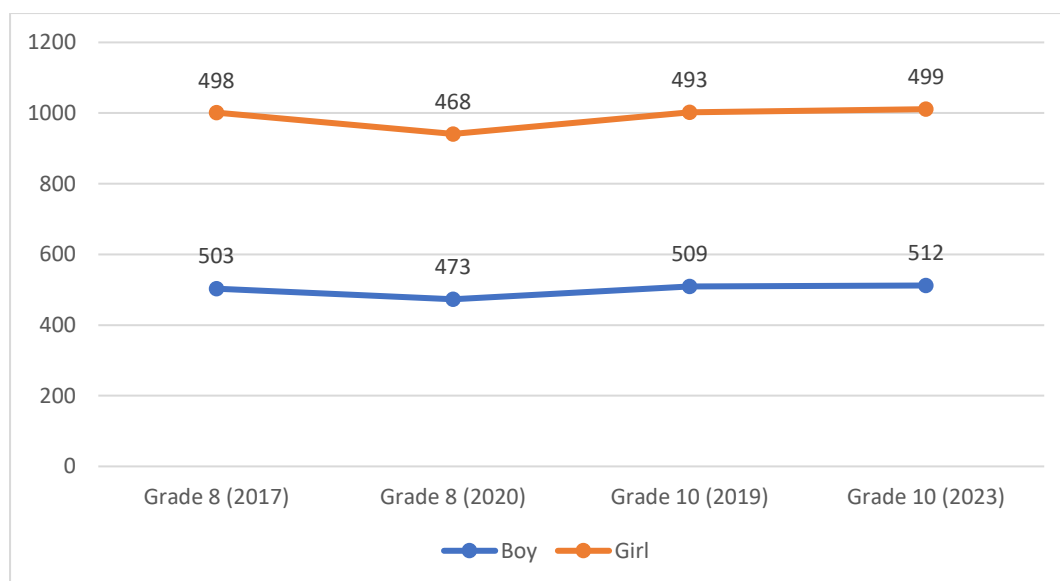


Figure 47: Science Achievement by Gender

Table 42: Science Achievement by Home Language

Home Language	Grade 10 (2019)	Grade 10 (2023)
Nepali	506	510
Others	489	497

In Grade 10, students whose home language is Nepali scored higher than those from other language backgrounds in both 2019 and 2023. Nepali-speaking students' scores increased from 506 in 2019 to 510 in 2023. Students from other language backgrounds also improved, rising from 489 to 497 during the same period. The gap between Nepali and other language groups narrowed slightly over time. Overall, both groups showed progress, with Nepali speakers maintaining a modest advantage.

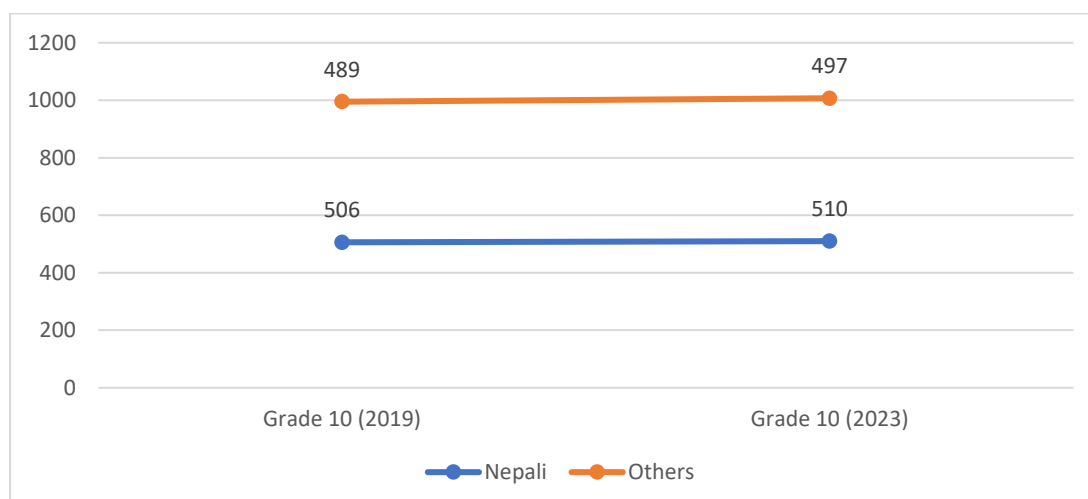
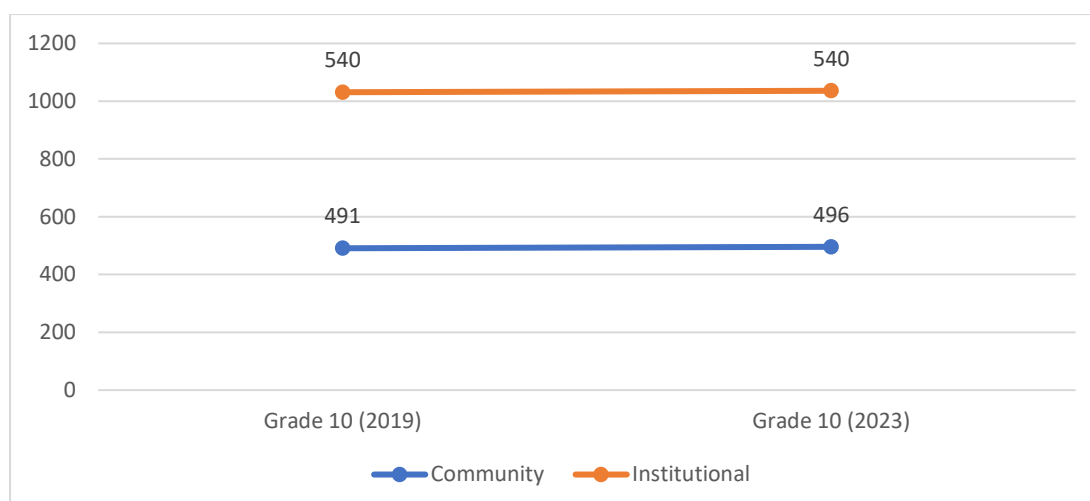


Figure 48: Science Achievement by Home Language**Table 43:** Science Achievement by Type of School

School Type	Grade 10 (2019)	Grade 10 (2023)
Community	491	496
Institutional	540	540

In Grade 10, institutional schools consistently outperformed community schools in both 2019 and 2023. Community schools' mean score increased slightly from 491 in 2019 to 496 in 2023. In contrast, institutional schools maintained a steady high score of 540 in both years. The achievement gap between institutional and community schools remained substantial. Overall, institutional schools continued to lead in student performance, while community schools showed modest improvement.

**Figure 49:** Science Achievement by Type of School**Table 44:** Science Achievement by Father's Education

Father's Education	Grade 10 (2019)	Grade 10 (2023)
Illiterate	481	482
Literate	495	497
Grade 10/Up to 10	503	502
Grade 12	518	517
Bachelor	534	532
Masters or above	554	552

In Grade 10, students' performance generally increased with higher levels of fathers' education. Children of illiterate fathers scored 481 in 2019 and slightly improved to 482 in 2023. Those with literate fathers rose from 495 to 497, while students whose fathers studied up to Grade 10 or 12 maintained scores around 502–517. Students whose fathers held a Bachelor's degree scored 534 in 2019 and slightly decreased to 532 in 2023, and those with Masters or higher degrees scored the highest, with a minor decline from 554 to 552. Overall, the data show a strong positive relationship between fathers' education and student achievement, with mostly stable trends over time.

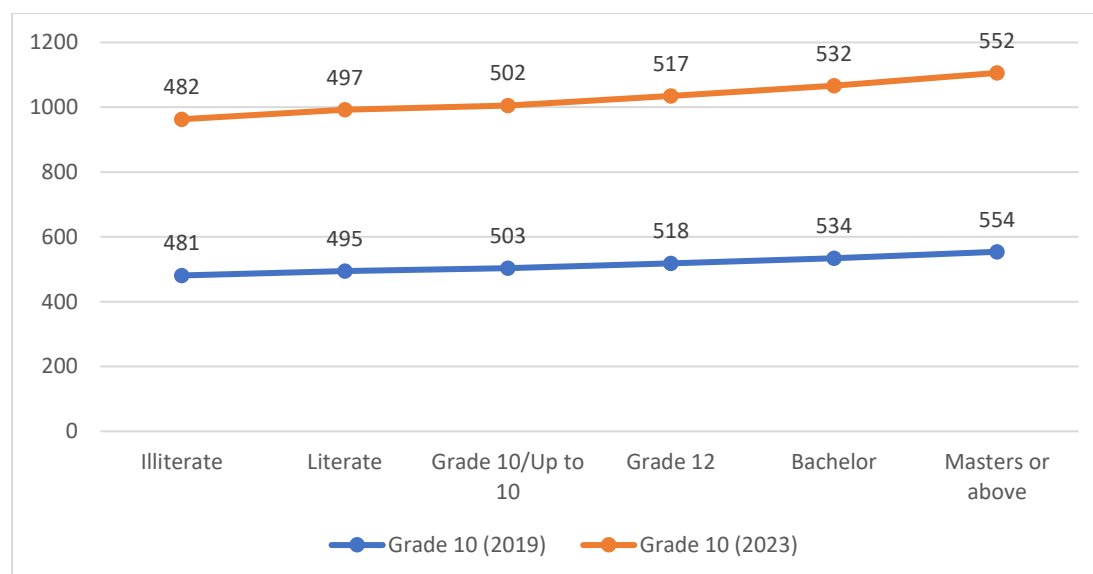


Figure 50: Science Achievement by Father's Education

Table 45: Science Achievement by Mother's Education

Mother's Education	Grade 8 (2017)	Grade 8 (2020)	Grade 10 (2019)	Grade 10 (2023)
Illiterate	489	460	488	490
Literate	501	471	499	501
Grade 10	512	481	514	509
Grade 12	522	494	534	526
Bachelor	537	501	546	545
Masters or above	520	514	561	550

In both Grade 8 and Grade 10, students' achievement generally increased with higher levels of mothers' education, though trends over time varied. In Grade 8, students with illiterate mothers scored 489 in 2017, declining to 460 in 2020, while those with literate mothers dropped from 501 to 471. Students whose mothers completed Grade 10 or 12 also

saw decreases, from 512 to 481 and from 522 to 494 respectively. Children of mothers with a Bachelor's degree scored 537 in 2017 and 501 in 2020, while those with Masters or above improved slightly from 520 to 514. In Grade 10, students generally showed higher scores than in Grade 8, with the highest achievement among those whose mothers held Masters or above (561 in 2019 and 550 in 2023), indicating a strong positive relationship between maternal education and student performance.

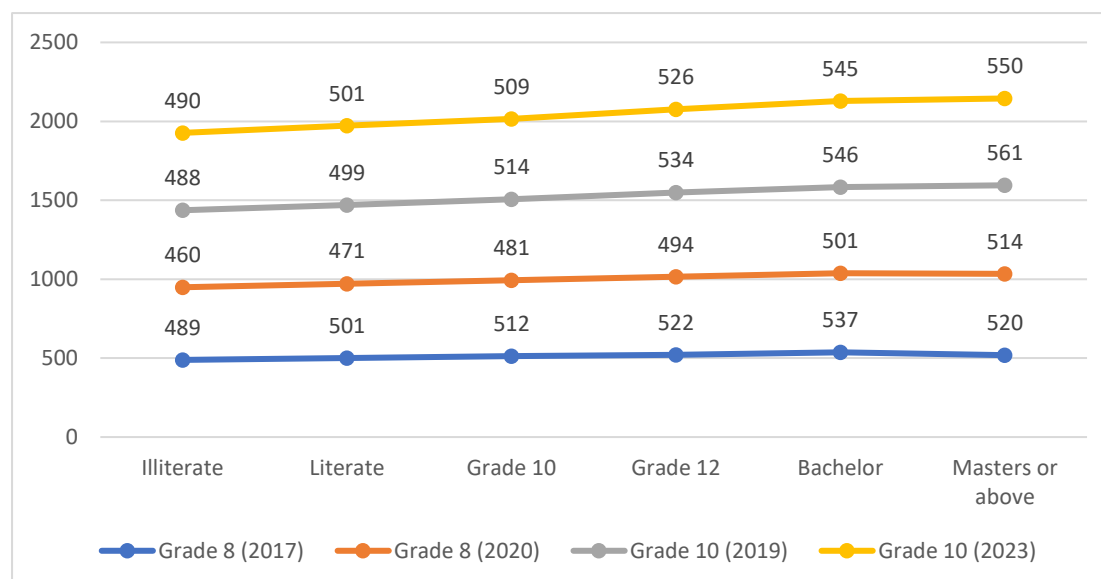


Figure 51: Science Achievement by Mother's Education

Table 46: Science Achievement by Father's Occupation

Father's Occupation	Grade 8 (2017)	Grade 8 (2020)	Grade 10 (2019)	Grade 10 (2023)
Agriculture/Household	488	465	488	490
Household only	481	476	485	483
Work in other's house	479*	461	497	476
Labor	499	474	501	499
Foreign country	501	478	521	502
Teaching	517	495	515	525
Business	515	484	515	517
Government job	515	488	521	518

In both Grade 8 and Grade 10, students' achievement varied by fathers' occupation, with higher scores generally associated with professional or formal employment. In Grade 8, children of parents in agriculture/household work scored 488 in 2017, declining to 465 in 2020, while those whose parents worked only in households or in others' houses also showed declines. Students whose fathers were laborers, in foreign employment, teaching, business, or

government jobs generally scored higher, though most groups experienced some decrease between 2017 and 2020. In Grade 10, children of fathers in teaching, government jobs, and foreign employment achieved the highest scores, with slight improvements or maintenance compared to Grade 8. Overall, students from professional or formal occupational backgrounds consistently performed better, while those from agriculture or household occupations lagged behind, though trends show some recovery in Grade 10.

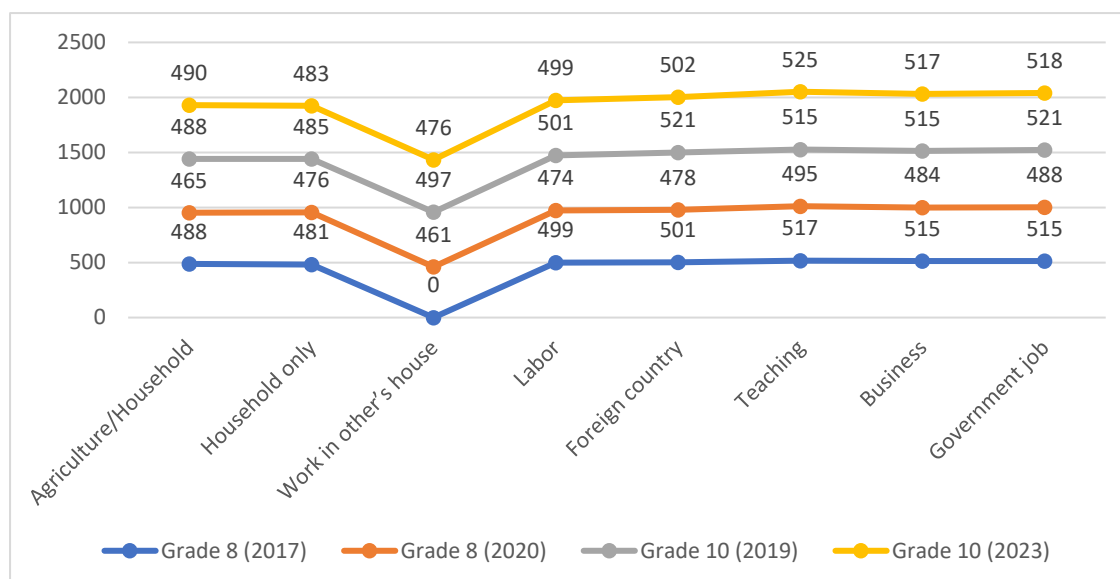


Figure 52: Science Achievement by Father's Occupation

Table 47: Science Achievement by Mother's Occupation

Mother's Occupation	Grade 8 (2017)	Grade 8 (2020)	Grade 10 (2019)	Grade 10 (2023)
Agriculture/Household	493	465	493	496
Household only	511	476	511	511
Work in others' houses	493	461	498	502
Labor	498	474	506	501
Foreign country	509	478	515	507
Teaching	525	495	532	533
Business	514	484	520	522
Government job	517	488	517	525

In both Grade 8 and Grade 10, students' performance varied by mothers' occupation, with higher achievement generally associated with professional or formal jobs. In Grade 8, children of mothers in agriculture/household work scored 493 in 2017, dropping to 465 in 2020, while those in household-only or working in others' houses also showed declines.

Students whose mothers were laborers, in foreign employment, teaching, business, or government jobs scored higher, though most experienced slight decreases in 2020. In Grade 10, students of mothers in teaching, government jobs, and business achieved the highest scores, with small improvements or maintenance compared to Grade 8. Overall, students whose mothers held professional or formal occupations consistently outperformed others, while those from household or agricultural backgrounds lagged, though Grade 10 results show partial recovery.

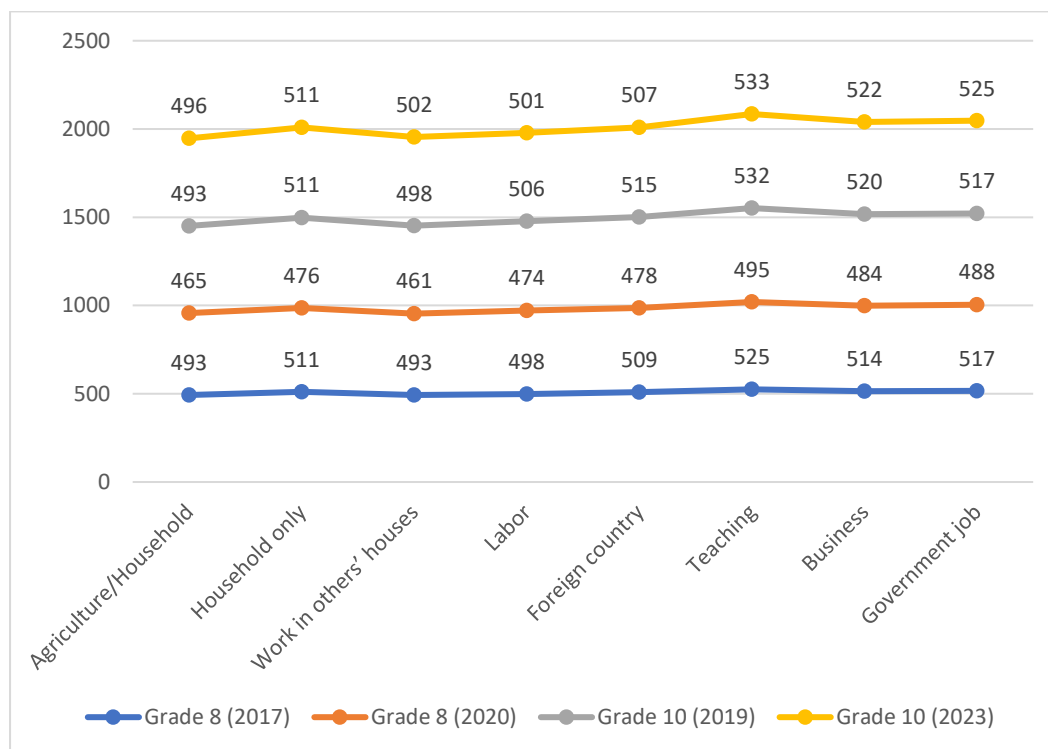


Figure 53: Science Achievement by Mother's Occupation

Table 48: Science Achievement by After-School Support

Support Source	Grade 10 (2019)	Grade 10 (2023)
Father	498	503
Mother	501	499
Sibling	496	502
Tuition	507	506
Friend	500	511
None	515	517

In Grade 10, students' mean scores varied slightly by source of academic support. Those supported by fathers improved from 498 in 2019 to 503 in 2023, while mother-supported students remained relatively stable, scoring 501 and 499. Students helped by siblings increased from 496 to 502, and those supported by friends improved from 500 to 511. Tuition-supported students maintained high scores, 507 in 2019 and 506 in 2023. Interestingly, students without any support recorded the highest scores, rising from 515 to 517, suggesting that formal or informal support does not always guarantee higher achievement.

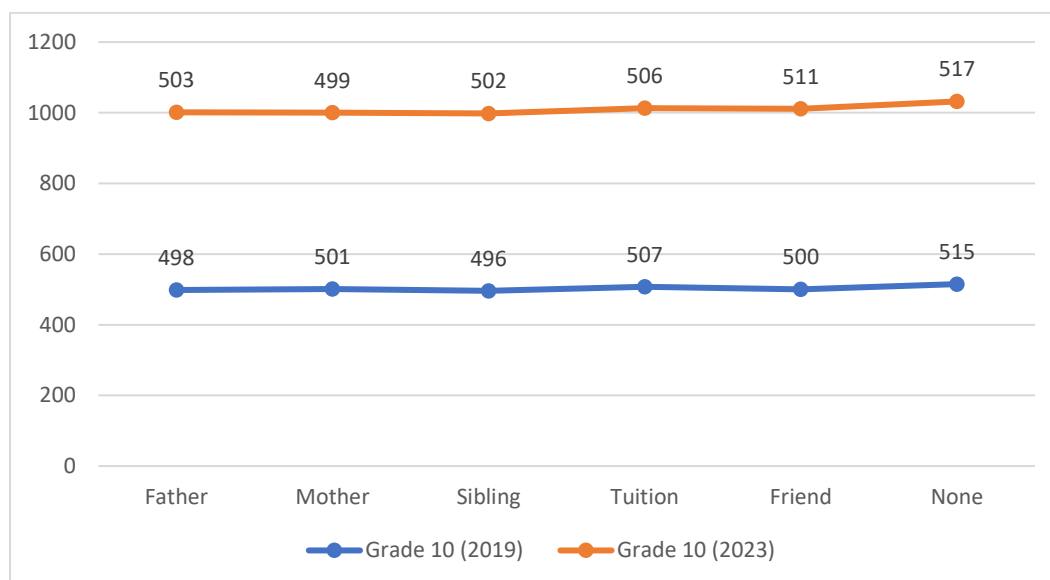


Figure 54: Science Achievement by After-School Support

Table 49: Science Achievement by Homework and Feedback

Frequency	Grade 8 (2017)	Grade 8 (2020)	Grade 10 (2019)	Grade 10 (2023)
Regularly	500	471	505	505
Sometimes	502	473	506	506
Never	495	452	505	505

In both Grade 8 and Grade 10, students' performance showed some variation based on the frequency of engagement. In Grade 8, students who participated regularly scored 500 in 2017, declining to 471 in 2020, while those participating sometimes scored 502 and 473, and those who never participated scored 495 and 452. In Grade 10, scores were generally higher and more stable across all frequency groups, with regular, sometimes, and never participation groups scoring 505–506 in 2019 and 505–506 in 2023. Overall, while more frequent engagement in Grade 8 was associated with slightly higher performance, by Grade 10 the differences between frequency groups became minimal, indicating other factors may influence achievement at higher grades.

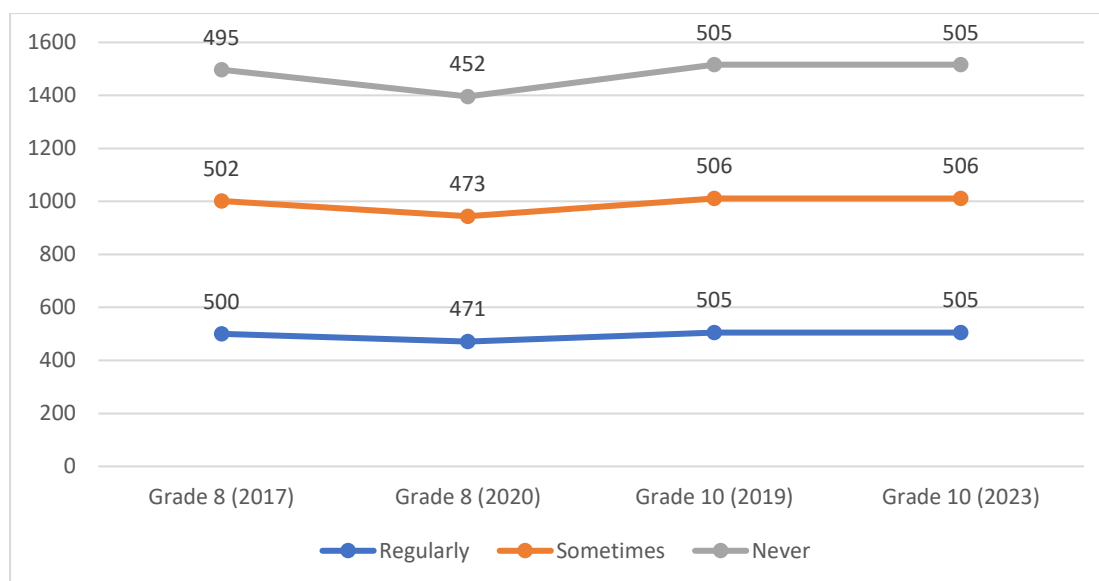


Figure 55: Science Achievement by Homework and Feedback

Nepali

The following tables present a wide range of variables that influence student achievement in Nepal, and they can be meaningfully grouped into three broad clusters. The first cluster pertains to academic and cognitive performance in Nepali. Here, students' achievement is measured across content areas such as reading, writing, grammar, and vocabulary, as well as cognitive levels such as knowledge, comprehension, application, and higher-order ability. These variables capture both foundational aspects of the Nepali language (e.g., reading fluency, grammatical accuracy, and word use) and higher-order skills such as interpretation, application, and problem-solving in Nepali. This cluster reflects how well students master their mother tongue across grades and years, at both basic and advanced cognitive levels.

Table 50: Achievement Scores by Content Area and Cognitive Level Grade 3

Main Category	Variables	Grade 3 (2012)	Grade 3 (2015)
Content Area	Reading	64	54
	Writing	54	41
	Grammar	57	65
	Vocabulary	60	75
Cognitive Level	Knowledge	72	64
	Comprehension	65	56
	Application	56	51

In Grade 3, students' performance across content areas and cognitive levels changed between 2012 and 2015. For content areas, reading scores declined from 64 to 54, and writing

dropped from 54 to 41. In contrast, grammar improved from 57 to 65, and vocabulary increased from 60 to 75, showing gains in language skills beyond basic reading and writing. At the cognitive level, knowledge decreased from 72 to 64, comprehension dropped from 65 to 56, and application declined slightly from 56 to 51. Overall, while basic literacy skills like reading and writing declined, students showed improvement in vocabulary and grammar, but cognitive-level performance generally decreased.

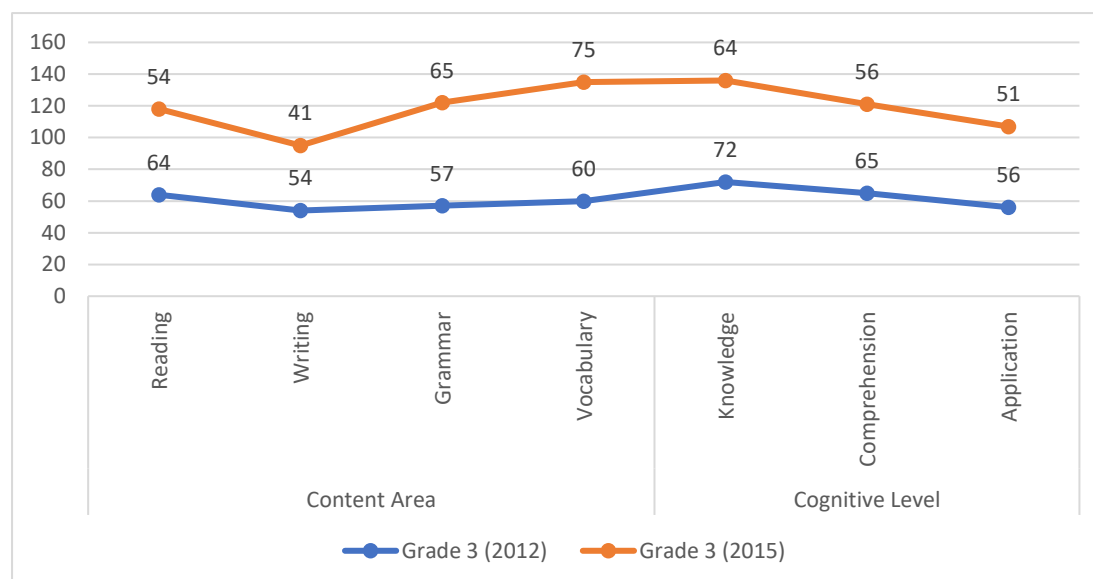


Figure 56: Achievement Scores by Content Area and Cognitive Level Grade 3

Table 51: Achievement Scores by Diversity Fact Grade 3

Variables	Grade 3 (2012)	Grade 3 (2015)
Ecological Zone		
Mountain	61	49
Hill	56	50
Terai	53	49
Valley	73	64
School Location		
Rural	65	49
Urban	64	60
Caste/Ethnicity		
Brahmin	63	61
Janajati	58	54
Minority	55	49
Madhesi	58	47

In Grade 3, students' mean scores declined in most ecological zones and social groups between 2012 and 2015. By ecological zone, Mountain students dropped from 61 to 49, Hill students from 56 to 50, and Terai students from 53 to 49, while Valley students showed a smaller decline from 73 to 64. Regarding school location, rural students' scores decreased sharply from 65 to 49, whereas urban students' scores declined slightly from 64 to 60. By caste/ethnicity, Brahmin students decreased slightly from 63 to 61, Janajati from 58 to 54, Minority students from 55 to 49, and Madhesi students experienced a larger drop from 58 to 47. Overall, the data indicate notable declines in achievement across most zones, locations, and social groups, with rural and Madhesi students experiencing the largest decreases.

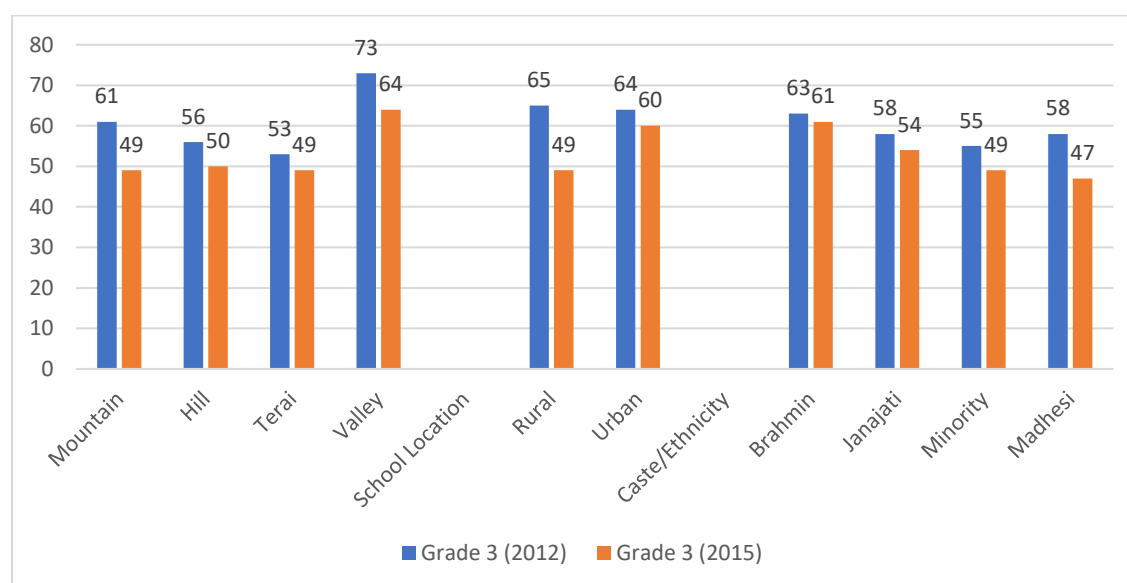


Figure 57: Achievement Scores by Diversity Factor Grade 3

Table 52: Achievement Scores by Content Area and Cognitive Level Grade 5

Main Category	Variables	Grade 5 (2012)	Grade 5 (2015)
Content Area	Reading	56	38.6
	Writing	58	33
	Grammar	64	37.5
	Vocabulary	70	52.4
Cognitive Level	Knowledge	71	65.1
	Comprehension	63	47.9
	Application	61	32.1
	Higher Ability	47	31.2

In Grade 5, students' performance across content areas and cognitive levels declined between 2012 and 2015. For content areas, reading dropped from 56 to 38.6, writing from 58

to 33, grammar from 64 to 37.5, and vocabulary from 70 to 52.4. At the cognitive level, knowledge decreased from 71 to 65.1, comprehension from 63 to 47.9, application from 61 to 32.1, and higher-ability skills fell from 47 to 31.2. Overall, the data indicate substantial learning losses in both language content areas and higher-order cognitive skills over the three-year period.

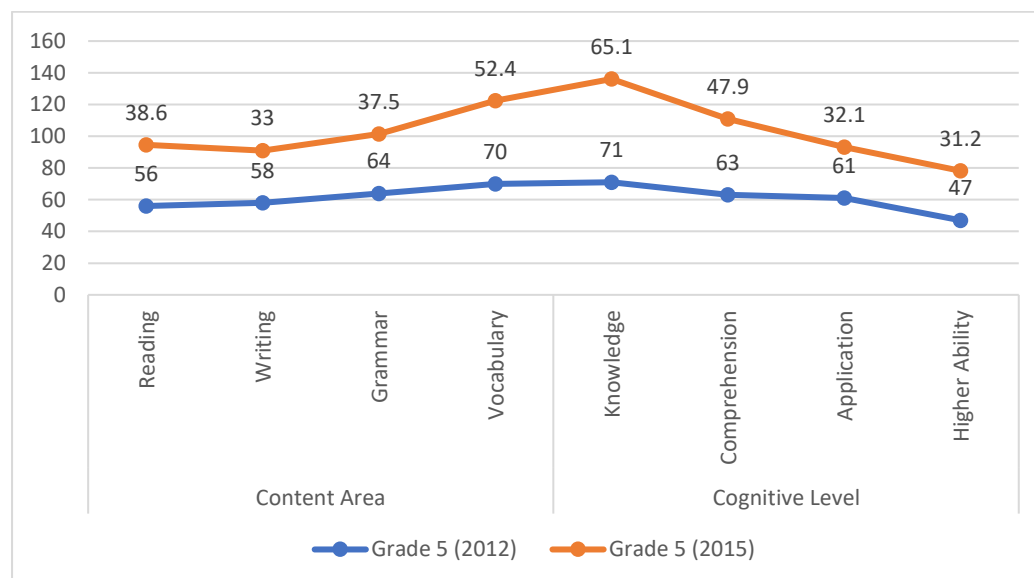


Figure 58: Achievement Scores by Content Area and Cognitive Level, Grade 5

Table 53: Achievement Scores by Diversity Factors Grade 5

Variables	Grade 5 (2012)	Grade 5 (2015)
Ecological Zone		
Mountain	61.1	41.4
Hill	56.6	45.9
Terai	52.8	43.4
Valley	77.5	57.1
School Location		
Rural	49	44.4
Urban	60	53
Gender		
Boy	59	45.6
Girl	60.7	48.1

In Grade 5, students' mean scores declined sharply across ecological zones, school locations, and genders between 2012 and 2015. By ecological zone, Mountain students dropped from 61.1 to 41.4, Hill from 56.6 to 45.9, Terai from 52.8 to 43.4, and Valley from

77.5 to 57.1, showing the largest decline in the Mountain and Valley regions. For school location, rural students' scores fell from 49 to 44.4, while urban students' scores declined from 60 to 53. By gender, boys' scores decreased from 59 to 45.6, and girls' scores dropped from 60.7 to 48.1. Overall, the data indicate substantial learning losses across all groups, with the most pronounced declines in certain ecological zones and among boys.

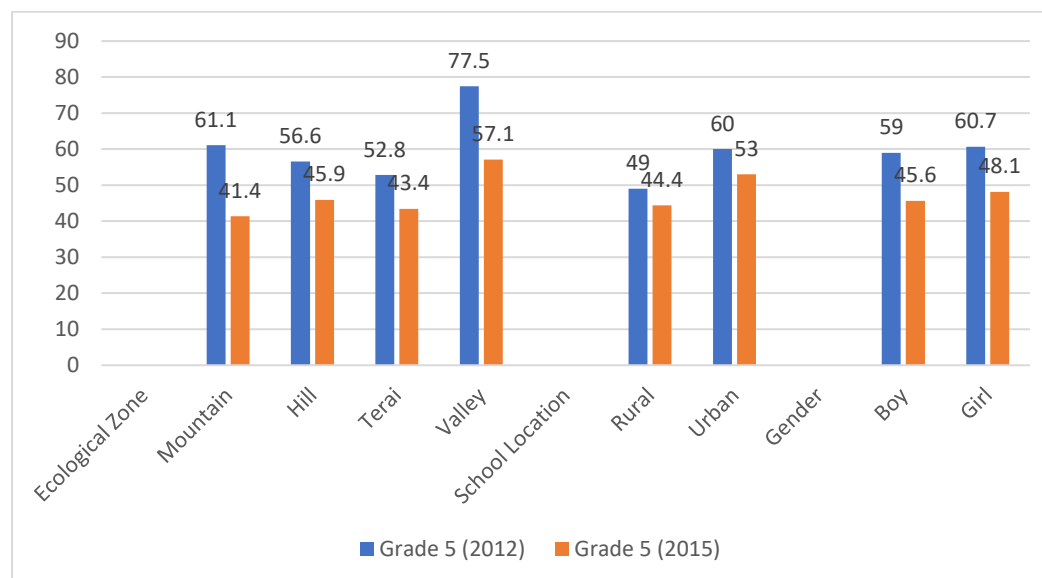


Figure 59: Achievement Scores by Diversity Factors Grade 5

Table 54: Achievement Scores by Diversity Factors Grade 5

Variables	Grade 5 (2018)	Grade 5 (2022)
Provinces		
Koshi	500	502
Madhesh	489	492
Bagmati	506	509
Gandaki	511	505
Lumbini	496	499
Karnali	488	490
Sudurpaschim	491	487
Home language		
Nepali	504	507.41
Non-Nepali	492	490.57
Gender		
Boy	501	495.89
Girl	499	502.8

Caste/Ethnicity		
Brahmin	501	507.5
Chhetri	501	507.5
Others	494	497.87
Janajati	500	499.87
Dalit	494	490.64

In Grade 5, students' mean scores from 2018 to 2022 show mixed trends across provinces, languages, gender, and caste/ethnicity. By province, scores slightly improved in Koshi (500 to 502), Madhesh (489 to 492), Bagmati (506 to 509), Gandaki (511 to 505), Lumbini (496 to 499), and Karnali (488 to 490), while Sudurpaschim decreased from 491 to 487. For home language, Nepali-speaking students' scores increased from 504 to 507.41, while non-Nepali speakers' scores slightly declined from 492 to 490. By gender, boys' scores decreased from 501 to 495.89, whereas girls' scores increased from 499 to 502.8, reversing the previous gender gap. Across caste/ethnicity, Brahmin and Chhetri students' scores improved from 501 to 507.5, Others rose from 494 to 497.87, Janajati remained almost stable (500 to 499.87), and Dalit students' scores declined slightly from 494 to 490.64. Overall, the data indicate modest improvements in most provinces and social groups, with notable gains for girls and higher-caste students, while some regions and Dalit students saw slight declines.

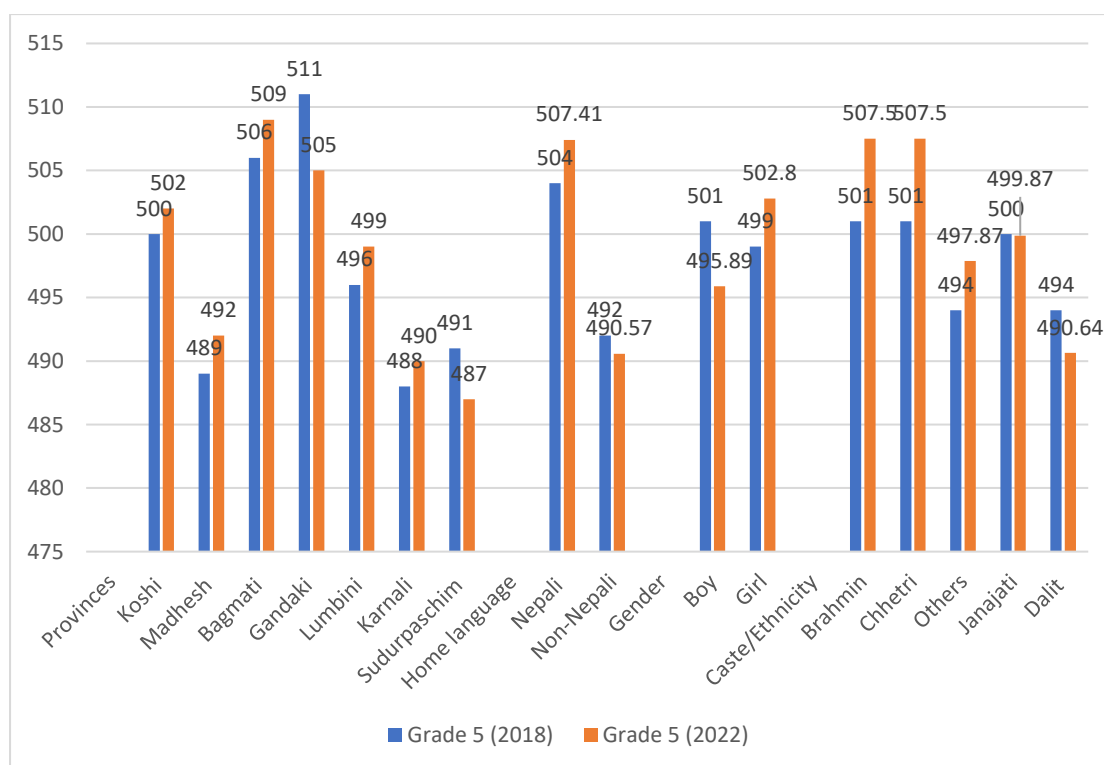
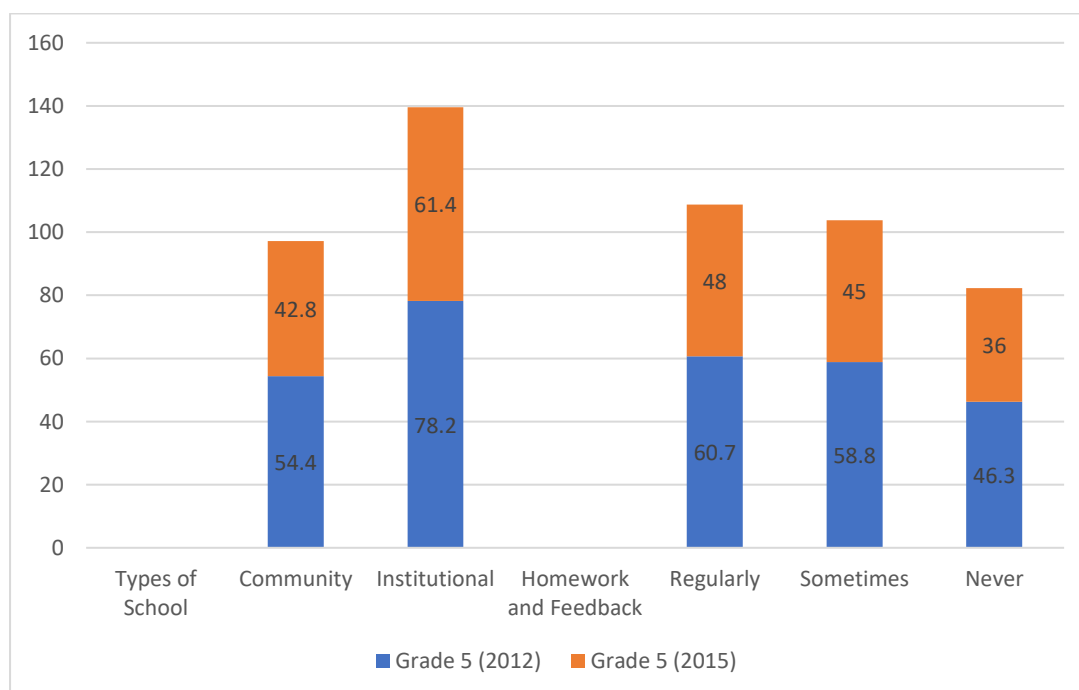


Figure 60: Achievement Scores by Diversity Factors Grade 5

Table 55: *Achievement Scores by School Grade 5*

Variables	Grade 5 (2012)	Grade 5 (2015)
Types of School		
Community	54.4	42.8
Institutional	78.2	61.4
Homework and Feedback		
Regularly	60.7	48
Sometimes	58.8	45
Never	46.3	36

In Grade 5, students' mean scores declined sharply from 2012 to 2015 across school types and homework/feedback practices. Community schools' scores dropped from 54.4 to 42.8, while institutional schools declined from 78.2 to 61.4, showing a consistently large gap in favor of institutional schools. Regarding homework and feedback, students receiving regular homework scored 60.7 in 2012, decreasing to 48 in 2015; those receiving homework sometimes fell from 58.8 to 45, and students who never received homework declined from 46.3 to 36. Overall, the data indicate that institutional schools and consistent homework/feedback were associated with higher performance, but all groups experienced substantial learning losses over the three years.

**Figure 61:** Achievement Scores by School Types, Grade 5**Table 56:** *Achievement Scores by Parents' Education Grade 5*

Variables	Grade 5 (2012)	Grade 5 (2015)
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Parents' Education (Father)		
Illiterate	55	42
Literate	58	47
Grade 10 pass	68	47
SLC pass	67	52
Intermediate/+2 pass	69	52
Bachelor pass	76	52
Master's Degree pass	80	52
Parents' Education (Mother)		
Illiterate	57	43
Literate	58	48
SLC pass	72	55
Intermediate/+2 pass	73	50
Bachelor pass	83	50
Master's Degree pass	81	50

In Grade 5, students' achievement declined substantially from 2012 to 2015 across all levels of parents' education. For fathers' education, students whose fathers were illiterate dropped from 55 to 42, while those with literate fathers declined from 58 to 47. In 2012, scores increased steadily with higher paternal education, reaching 80 for Master's degree holders, but in 2015 higher-education categories clustered around 52, reducing the earlier gap. A similar pattern is observed for mothers' education, where students of more educated mothers performed much better in 2012 (e.g., 83 for Bachelor and 81 for Master's), but declined to around 50–55 in 2015. Overall, although higher parental education was strongly linked to better performance in 2012, the sharp decline in 2015 narrowed the differences among educational levels.

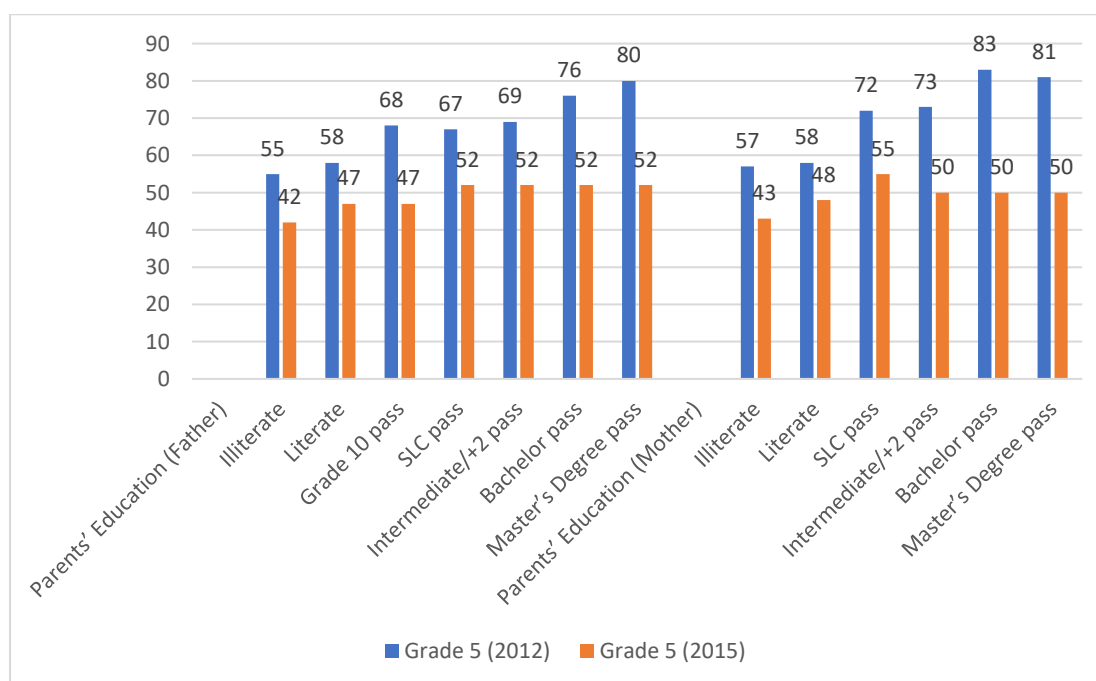


Figure 62: Achievement Scores by Parents' Education Grade 5

Table 57: *Achievement Scores by Parents' Education Grade 5*

Variables	Grade 5 (2018)	Grade 5 (2022)
Parents' Education (Father)		
Illiterate	487	483.66
Literate	496	494.65
Grade 8 pass	496.56	496
Grade 10 pass	510	501.71
Intermediate/+2 pass	511	521.76
Bachelor pass	519	527.94
Master's Degree pass	527	527.94
Parents' Education (Mother)		
Illiterate	491	489.37
Literate	498	498.52
Grade 8 pass	498.61	502
Grade 10 pass	514	501.16
Intermediate/+2 pass	516	522.67
Bachelor pass	525	527.76
Master's Degree pass	516	527.76

In Grade 5, students' achievement generally increased with higher levels of parents' education in both 2018 and 2022. For fathers' education, students whose fathers had Bachelor's or Master's degrees achieved the highest scores in both years, rising to about 527.94 in 2022, while those with illiterate fathers scored the lowest (487 in 2018 and 483.66 in 2022). Notably, students whose fathers completed Intermediate/+2 and Bachelor levels showed clear improvement in 2022 compared to 2018. A similar positive pattern is observed for mothers' education, where higher educational attainment—especially Intermediate/+2, Bachelor's, and Master's was associated with higher mean scores, reaching around 527.76 in 2022. Overall, the data indicate a strong and consistent positive relationship between parents' education and student achievement, with slight improvements at higher educational levels over time.

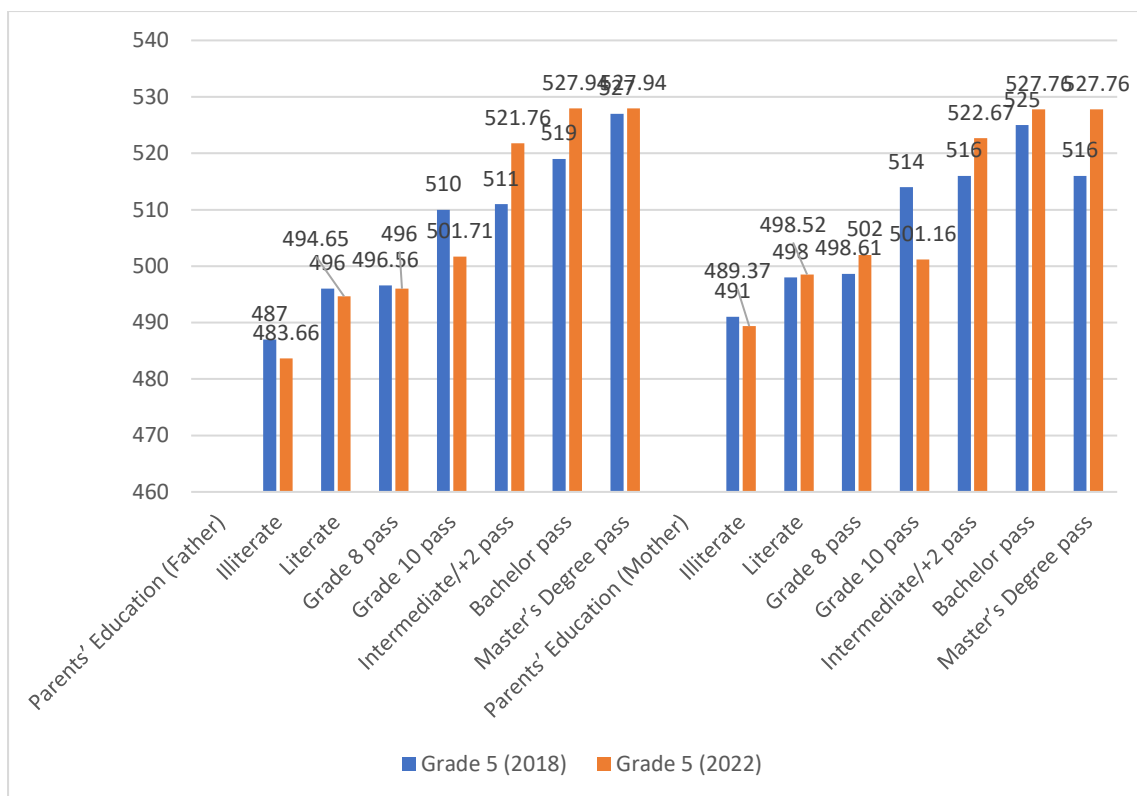


Figure 63: Achievement Scores by Parents' Education Grade 5

Table 58: Achievement Scores by After-School Support Grade 5

Variables	Grade 5 (2012)	Grade 5 (2015)
After school support in study		
Father	56.9	45.9
Mother	59.2	48.8
Sibling	61.7	49.2
Teacher	59.2	43.9
Tuition	63.3	42.7
Any other	63.3	48.8
None	56.9	45.9

In Grade 5, students' mean scores declined across all types of after-school support between 2012 and 2015. In 2012, students receiving tuition or other forms of support had the highest scores (63.3), followed by those supported by siblings (61.7), mothers (59.2), and teachers (59.2). However, by 2015, scores fell sharply for all groups, with tuition-supported students dropping notably from 63.3 to 42.7. Students receiving help from fathers or no support at all both scored 56.9 in 2012 and declined to 45.9 in 2015. Overall, although certain support types were associated with higher performance in 2012, the significant decline in 2015 reduced differences across support categories.

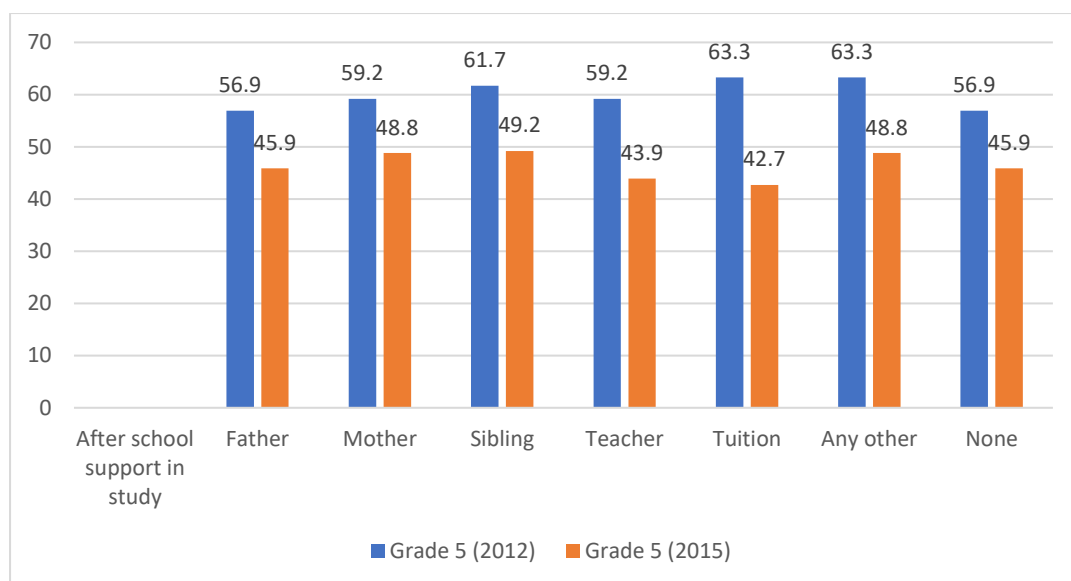


Figure 64: Achievement Scores by After-School Support Grade 5

Table 59: Achievement Scores by After-School Support, Grade 5

Variables	Grade 5 (2018)	Grade 5 (2022)
After school support in study		
Father	497	496.78
Mother	502	502.38
Sibling	500	504.63
Tuition	510	512.49
None	501	496.78

In Grade 5, students' mean scores remained relatively stable or slightly improved between 2018 and 2022 across different types of after-school support. Students receiving tuition support achieved the highest scores in both years, increasing from 510 in 2018 to 512.49 in 2022. Those supported by siblings also showed improvement, rising from 500 to 504.63, while support from mothers remained stable at around 502. Students supported by fathers showed almost no change (497 to 496.78), and those with no support experienced a slight decline from 501 to 496.78. Overall, tuition and sibling support were associated with relatively higher gains, while differences among support types remained modest.

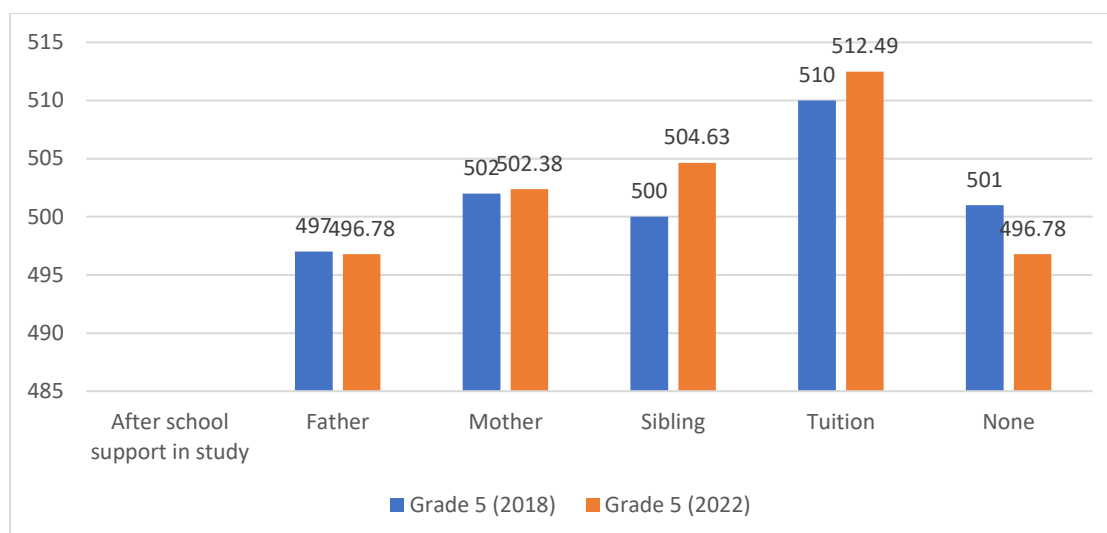


Figure 65: Achievement Scores by After-School Support, Grade 5

Table 60: Achievement Scores by School Type, Grade 10

Variables	Grade 10 (2019)	Grade 10 (2023)
Types of School		
Community	525	485.18
Institutional	491	522.86

In Grade 10, performance trends by school type changed notably between 2019 and 2023. Community schools recorded a sharp decline in mean scores from 525 in 2019 to 485.18 in 2023. In contrast, institutional schools showed a substantial improvement, increasing from 491 in 2019 to 522.86 in 2023. This shift reversed the earlier pattern, with institutional schools outperforming community schools in 2023. Overall, the data indicate a widening achievement gap in favor of institutional schools over time.

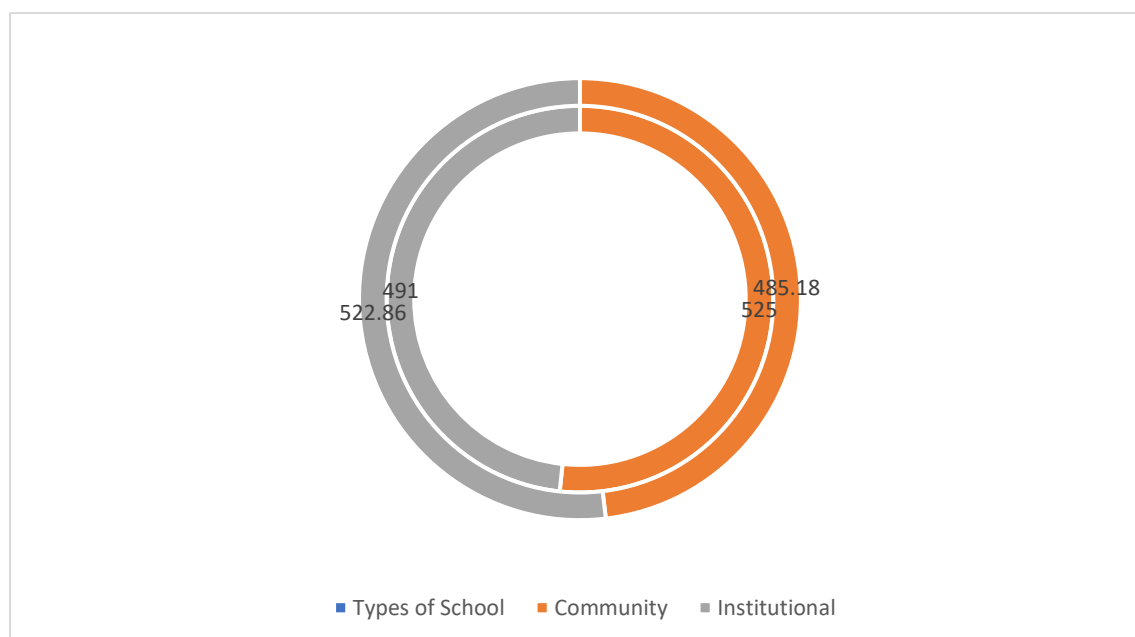


Figure 66: Achievement Scores by School Type, Grade 10, Nepali

English

The following tables present a wide range of variables that influence student achievement in English, and they can be meaningfully grouped into three broad clusters. The first cluster of variables centers on academic and cognitive performance, which captures how students actually perform in English. This includes overall achievement levels, as measured by national mean scores, and specific content areas such as reading, writing, grammar, and vocabulary. It also examines cognitive domains (knowledge, comprehension, application, and higher ability) that reflect not only rote learning but also higher-order thinking skills. Alongside this, proficiency levels ranging from pre-basic to advanced highlight how students are distributed across different stages of English mastery, providing a clearer picture of progression and stagnation across grades and years. These variables directly address the quality and depth of students' English learning.

Table 61: *Basic English Achievement and Cognitive Level Scores*

Main Category	Variables	Grade 5 (2012)	Grade 5 (2015)
Basic achievement results	National Mean	53.61	46.78
Content area	Reading	50.2	45.7
	Writing	49	40.2
	Grammar	56.5	53.4
	Vocabulary	57.8	62.2
Cognitive level	Knowledge	64	55.5
	Comprehension	50	41.5
	Application	49	53.4
	Higher ability	35	39.2

In Grade 5, national mean scores declined from 53.61 in 2012 to 46.78 in 2015, indicating an overall drop in student achievement. By content area, reading fell from 50.2 to 45.7 and writing dropped sharply from 49 to 40.2, while grammar decreased slightly from 56.5 to 53.4. Interestingly, vocabulary improved from 57.8 to 62.2, suggesting gains in word knowledge despite declines in other language skills. At the cognitive level, knowledge dropped from 64 to 55.5, and comprehension fell from 50 to 41.5, whereas application increased slightly from 49 to 53.4, and higher-ability skills rose from 35 to 39.2. Overall, while basic literacy and comprehension declined, vocabulary and higher-order skills showed modest improvements.

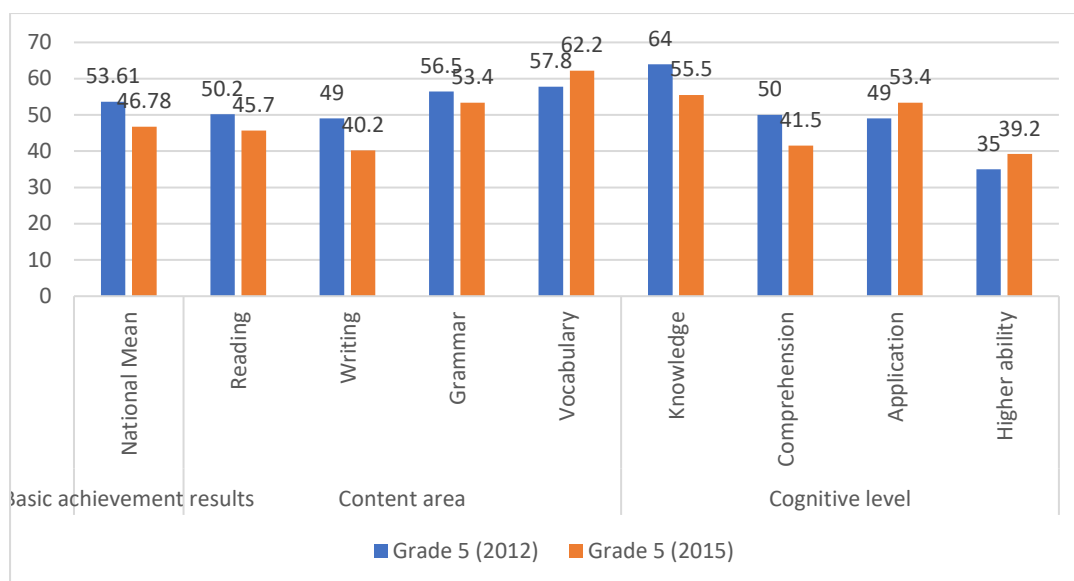


Figure 67: Basic English Achievement and Cognitive Level Scores

Table 62: English Achievement Scores by Demographic Grade 5

Variables	Grade 5 (2012)	Grade 5 (2015)
Gender		
Boy	55	47
Girl	53	47
Ecological zone		
Mountain	61.1	41.4
Hill	56.6	45.9
Terai	52.8	43.4
Valley	77.5	57.1
School location		
Rural	45.1	39.9
Urban	67.2	66
Types of School		
Community	44.4	38
Institutional	79	73

In Grade 5, students' mean scores declined across most groups from 2012 to 2015. By gender, boys' scores decreased from 55 to 47, while girls' scores dropped from 53 to 47, equalizing performance. Across ecological zones, Mountain students fell from 61.1 to 41.4, Hill from 56.6 to 45.9, Terai from 52.8 to 43.4, and Valley from 77.5 to 57.1, showing the largest declines in Mountain and Valley regions. By school location, rural students' scores

decreased from 45.1 to 39.9, whereas urban students' scores fell slightly from 67.2 to 66. Regarding school type, community schools dropped from 44.4 to 38, while institutional schools declined from 79 to 73, maintaining a large performance gap. Overall, the data indicate substantial learning losses in all groups, with persistent advantages for urban and institutional school students.

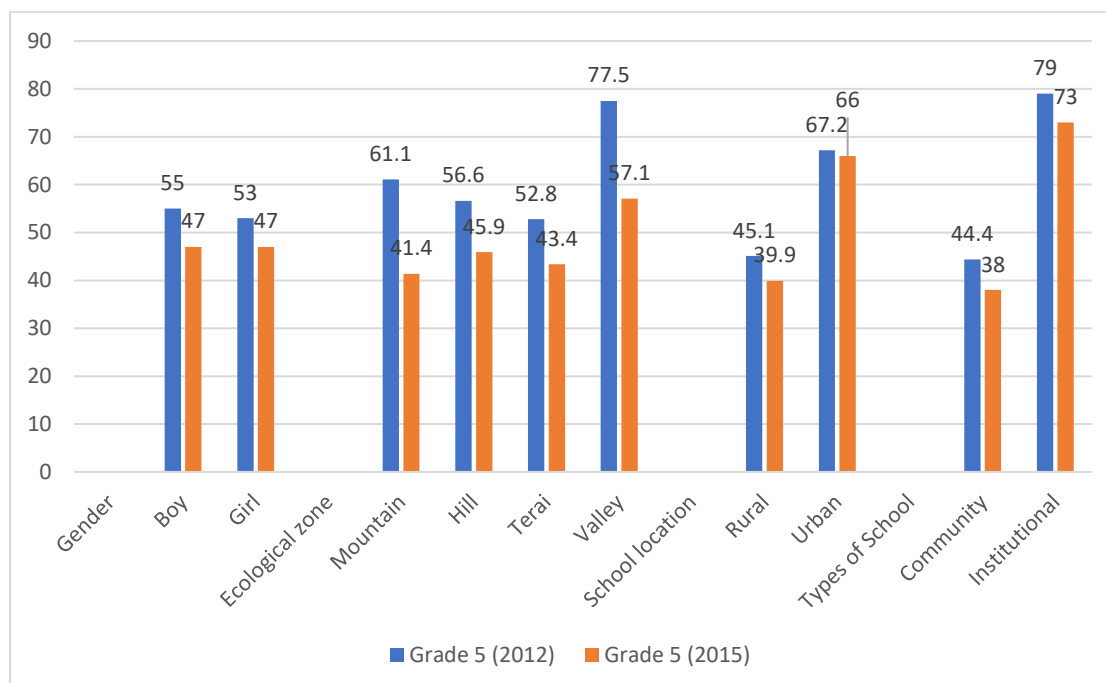


Figure 68: English Achievement Scores by Demographic Grade 5

Table 63: English Achievement and Explanatory Factors Grade 5

Variables	Grade 5 (2012)	Grade 5 (2015)
Parents' Education (Father)		
Illiterate	48	39.34
Literate	51	46.84
Grade 10 pass	65	48.31
SLC pass	61	56.38
Intermediate pass/12 pass	66	56.38
Bachelor pass	77	61.29
Master's Degree pass	82	61.29
Parents' Education (Mother)		
Illiterate	49	40.58
Literate	53	45.02
Grade 10 pass	70	53.54
SLC pass	69	60.29
Intermediate pass/12 pass	72	60.29
Bachelor pass	79	60.29
Master's Degree pass	86	60.29

In Grade 5, students' achievement declined notably from 2012 to 2015 across all levels of parents' education. For fathers' education, scores increased consistently with higher qualifications in 2012, rising from 48 (illiterate) to 82 (Master's degree), but dropped substantially in 2015, with higher education categories clustering around 56–61. A similar trend is observed for mothers' education, where students of more educated mothers performed much better in 2012, reaching 86 for Master's degree holders, but declined to around 60 in 2015. Despite the overall decline, students whose parents had higher educational qualifications continued to perform better than those with less educated parents. Overall, the data show a strong positive relationship between parental education and student achievement, although performance decreased in 2015.

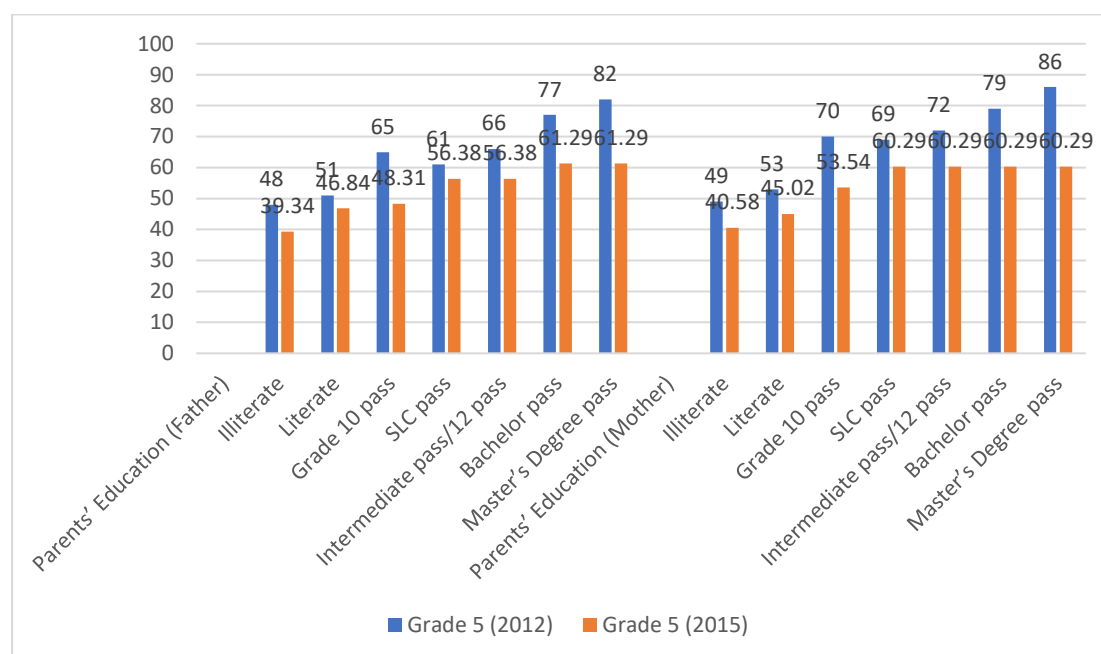


Figure 69: English Achievement and Explanatory Factors Grade 5

Table 64: English Achievement and Other Factors Grade 5

Variables	Grade 5 (2012)	Grade 5 (2015)
Father's occupation		
Farming and working at home	46	39.30
Working at others' homes	50	43.3
Working abroad	55	49.62
Only working at home	45	43.3
Daily wages	53	43.3
Business	65	57.86
Teaching	68	54.6
Services	72	60
Mother's occupation		
Farming and working at home	49	42.3
Working at others' homes	54	51.1
Working abroad	55	51.1

Only working at home	58	55.6
Daily wages	60	46.3
Business	66	58.8
Teaching	74	58.8
Services	76	58.8

In Grade 5, students' mean scores declined from 2012 to 2015 across most categories of both fathers' and mothers' occupations. For fathers' occupation, children of those in services, teaching, and business recorded the highest scores in 2012 (72, 68, and 65 respectively), but these decreased noticeably by 2015, though they remained comparatively higher than other groups. Students whose fathers worked in farming, daily wages, or only at home consistently had lower scores in both years, with further declines in 2015. A similar pattern is observed for mothers' occupation, where students of mothers in services, teaching, and business achieved the highest scores in 2012 (76, 74, and 66), but experienced reductions in 2015. Overall, while professional and service-sector occupations were associated with higher achievement, substantial declines between 2012 and 2015 affected nearly all occupational groups.

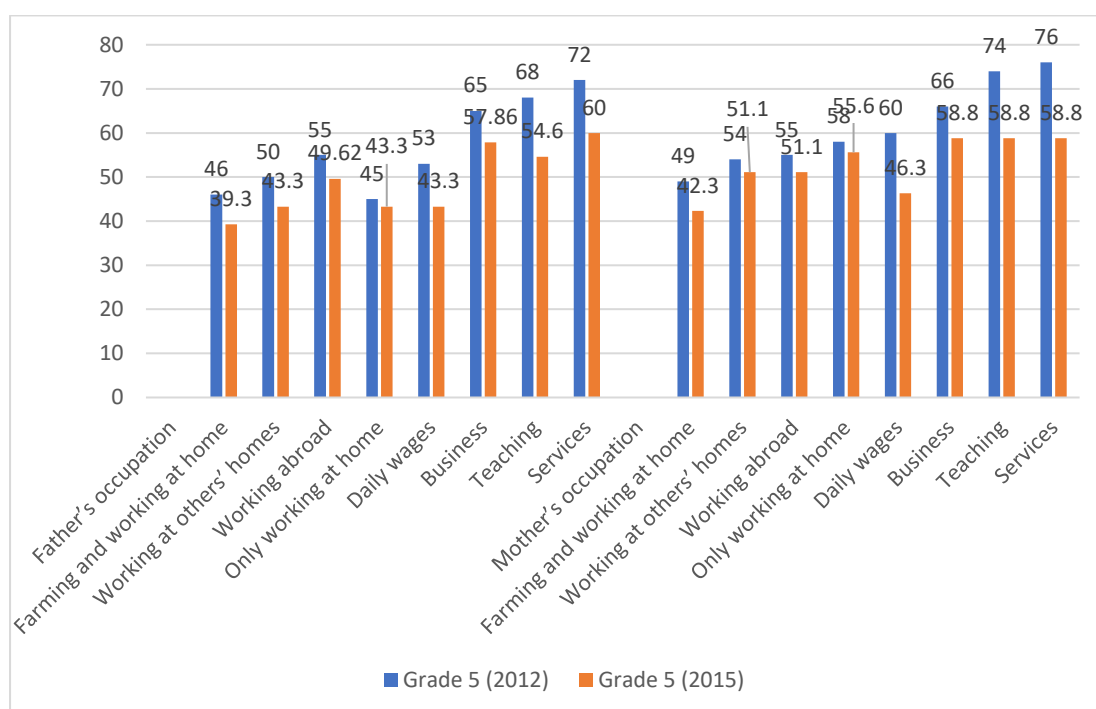


Figure 70: English Achievement and Other Factors Grade 5

Table 65: English Achievement and Other Factors Grade 10

Variables	Grade 10 (2019)	Grade 10 (2023)
Father's occupation		
Farming and working at home	481	497
Working at others' homes	473	486

Working abroad	499	513
Only working at home	484	503
Daily wages	487	504
Business	521	534
Teaching	518	534
Services	520	532
Mother's occupation		
Farming and working at home	486	502
Working at others' homes	496	514
Working abroad	517	528
Only working at home	518	529
Daily wages	500	518
Business	529	540
Teaching	530	550
Services	521	539

In Grade 10, students' mean scores improved markedly from 2019 to 2023 across almost all categories of parents' occupations. For fathers' occupation, students whose fathers were engaged in business, teaching, and services recorded the highest scores in both years, rising to around 532–534 in 2023. Noticeable improvements were also seen among students whose fathers worked abroad, in daily wages, farming, or only at home, indicating broad-based gains. A similar upward trend is observed for mothers' occupation, where students of mothers in teaching, business, and services achieved the highest scores, reaching up to 550 in 2023. Overall, while children of parents in professional and service sectors consistently performed better, the data show significant improvement across all occupational groups over time.

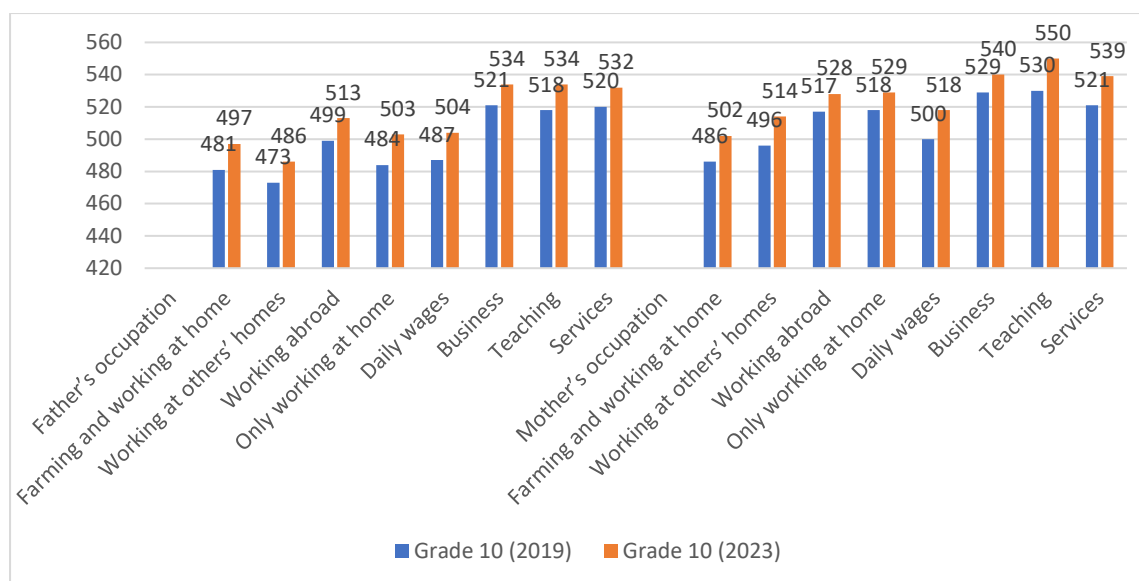


Figure 71: English Achievement and Other Factors Grade 10

Table 66: English Proficiency Levels Grade 10

Main Category	Variables	Grade 10 (2019)	Grade 10 (2023)
Proficiency level	Pre-basic level	30	4
	Basic level	21	9
	Proficient level I	19	17
	Proficiency level II	12	21
	Proficiency level III	9	17
	Advanced level	9	32

In Grade 10, students' proficiency levels shifted substantially between 2019 and 2023. The proportion at pre-basic level dropped sharply from 30% to 4%, and those at basic level decreased from 21% to 9%, indicating fewer students performing at the lowest levels. Students at Proficient Level I remained fairly stable (19% to 17%), while Proficiency Level II increased from 12% to 21%, and Level III rose from 9% to 17%. The most notable change occurred at the advanced level, which grew dramatically from 9% in 2019 to 32% in 2023. Overall, the data show a clear upward shift in student performance, with more students achieving higher proficiency and far fewer at the lowest levels.

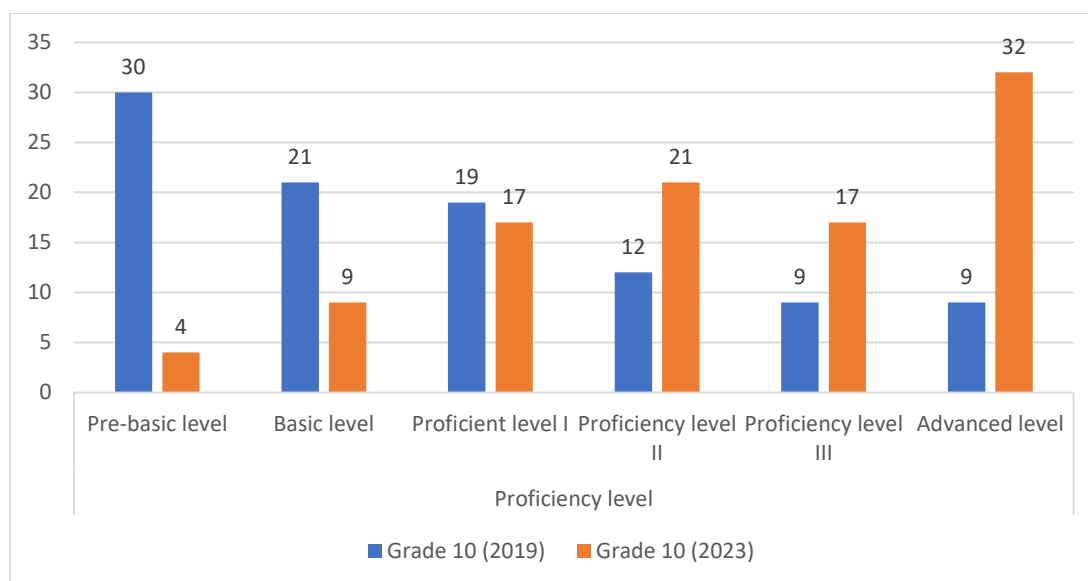


Figure 72: English Proficiency Levels Grade 10

Table 67: English Achievement and Explanatory Factors Grade 10

Variables	Grade 10 (2019)	Grade 10 (2023)
Parents' Education (Father)		
Illiterate	477	489
Literate	487	503
Grade 10 pass	506	515
Intermediate pass/12 pass	524	531
Bachelor pass	539	549
Master's Degree pass	558	562
Parents' Education (Mother)		
Illiterate	482	496
Literate	493	508
Grade 10 pass	523	527
Intermediate pass/12 pass	541	544
Bachelor pass	556	565
Master's Degree pass	567	564

In Grade 10, students' mean scores increased from 2019 to 2023 across almost all levels of parents' education. For fathers' education, scores rose steadily with higher qualifications, from 477 (illiterate) to 558 (Master's) in 2019, and further improved in 2023, reaching 562 for Master's degree holders. Students whose fathers had Bachelor's and Intermediate qualifications also showed notable gains, indicating a strong positive

relationship between paternal education and achievement. A similar pattern is observed for mothers' education, where higher educational attainment corresponded to higher student scores, with Bachelor and Master's levels achieving the highest results in both years. Overall, the data confirm a clear and consistent positive association between parents' education and student performance, along with overall improvement between 2019 and 2023.

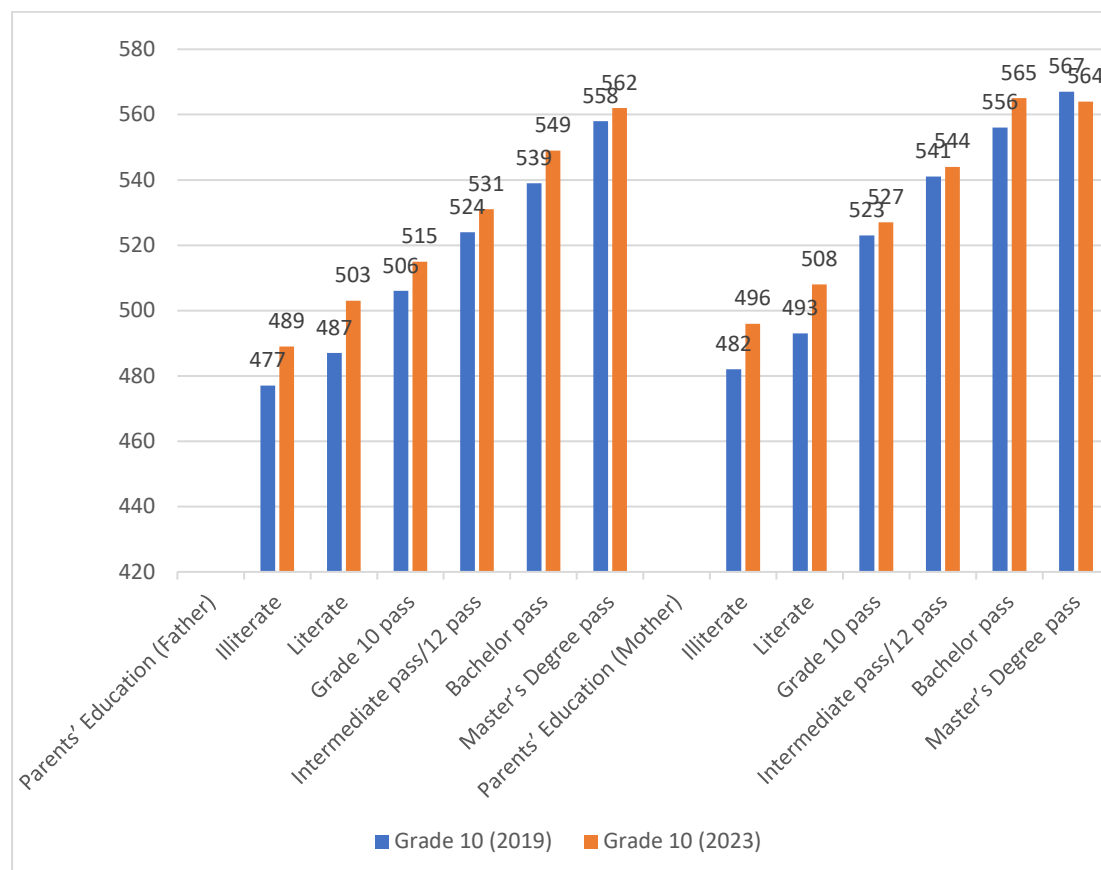


Figure 73: English Achievement and Explanatory Factors Grade 10

Table 68: English Achievement Scores by Demographics Grade 10

Variables	Grade 10 (2019)	Grade 10 (2023)
Gender		
Boy	506	519
Girl	496	512
Caste/ethnicity		
Brahamin/Chhetri	507	522
Janajati	499	515
Dalit	487	504
Others	497	516
Home language		

Nepali	506	523
Others	486	500
Types of School		
Community	488	503
Institutional	556	562

In Grade 10, students' mean scores improved across all groups from 2019 to 2023. Boys increased from 506 to 519, while girls rose from 496 to 512, slightly narrowing the gender gap. By caste/ethnicity, Brahmin/Chhetri students scored highest (507 to 522), followed by Janajati (499 to 515), Others (497 to 516), and Dalit students (487 to 504), showing gains for all groups. Students whose home language is Nepali improved from 506 to 523, while those with other home languages rose from 486 to 500, slightly narrowing the language gap. Regarding school type, community schools increased from 488 to 503, whereas institutional schools maintained the highest scores, rising from 556 to 562, highlighting a persistent performance advantage.

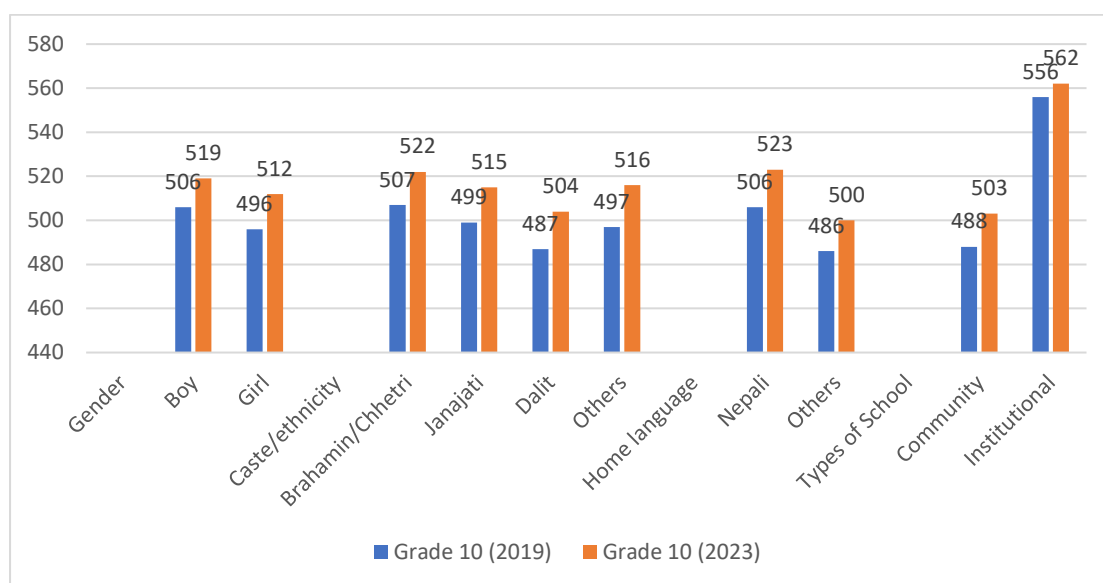


Figure 74: English Achievement Scores by Demographics, Grade 10

Table 69: English Achievement Scores by Province

Province	Grade 10 (2019)	Grade 10 (2023)
Koshi	500	520
Madhesh	482	504
Bagmati	534	536
Gandaki	516	534
Lumbini	502	516
Karnali	474	490
Sudur Pashchhim	483	492

In Grade 10, students' mean scores improved across all provinces from 2019 to 2023. Koshi increased from 500 to 520, Madhesh from 482 to 504, Bagmati from 534 to 536, and Gandaki from 516 to 534. Lumbini improved from 502 to 516, Karnali from 474 to 490, and Sudur Pashchhim from 483 to 492. Overall, the data show consistent gains in student achievement across all provinces, with Bagmati maintaining the highest performance and Karnali the lowest, though all regions made noticeable progress.

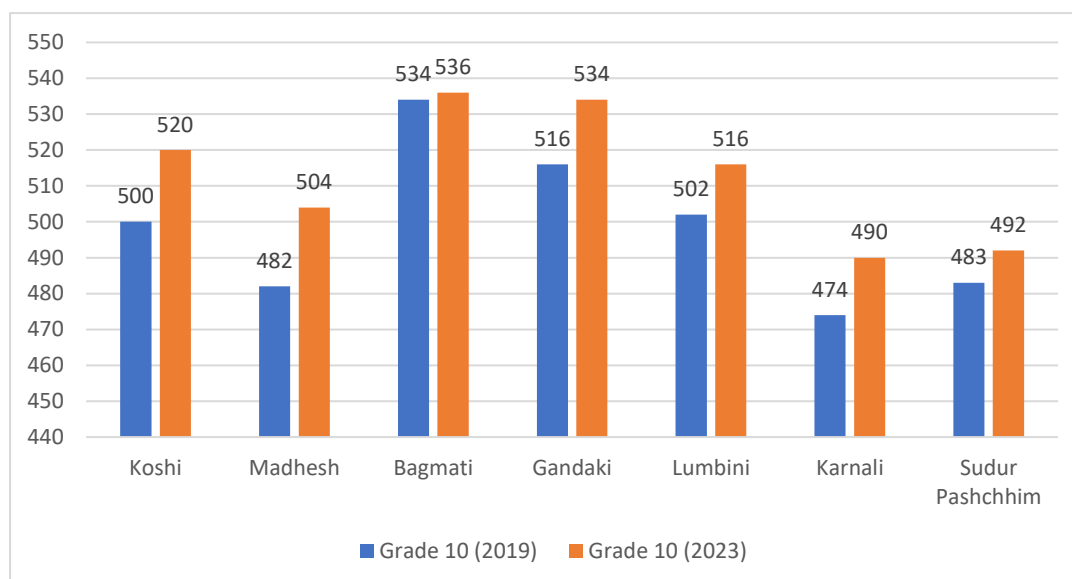


Figure 75: English Achievement Scores by Province

Trends of Grade 10 Science, English, Nepali, and Math Subjects on the NASA Report 2019 and 2023

The trends for subjects such as science, English, Nepali, and mathematics in grade 10 are presented in the following table.

Table 70: Comparison of the National Mean of Science

Years	National mean
2019	500
2023	505

Science performance increased slightly from 500 in 2019 to 505 in 2023. This small rise shows slow but steady improvement in students' learning. Although the change is not very large, it still reflects progress. Students seem to be performing a bit better in science than before. The following chart visualizes the national means of science subject.

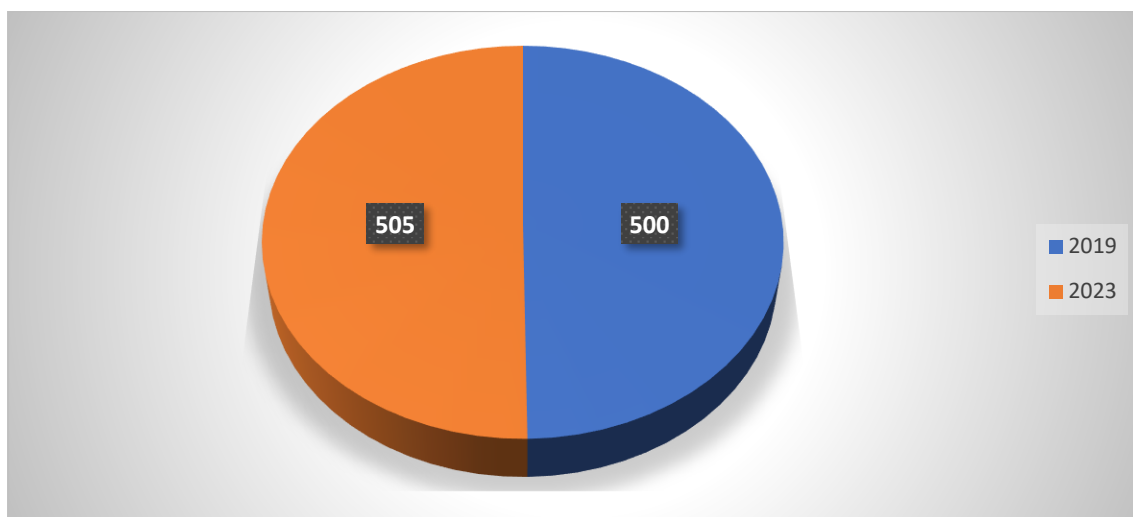


Figure 76: Comparison of the National Mean of Science

Table 71: Comparison of the National Mean of English

Years	National mean
2019	500
2023	515

English scores improved from 500 in 2019 to 515 in 2023. This is higher than other subjects. The improvement suggests that students are learning English more effectively. Overall, English has shown strong growth over the last few years. The following chart shows the national means for the English subject.

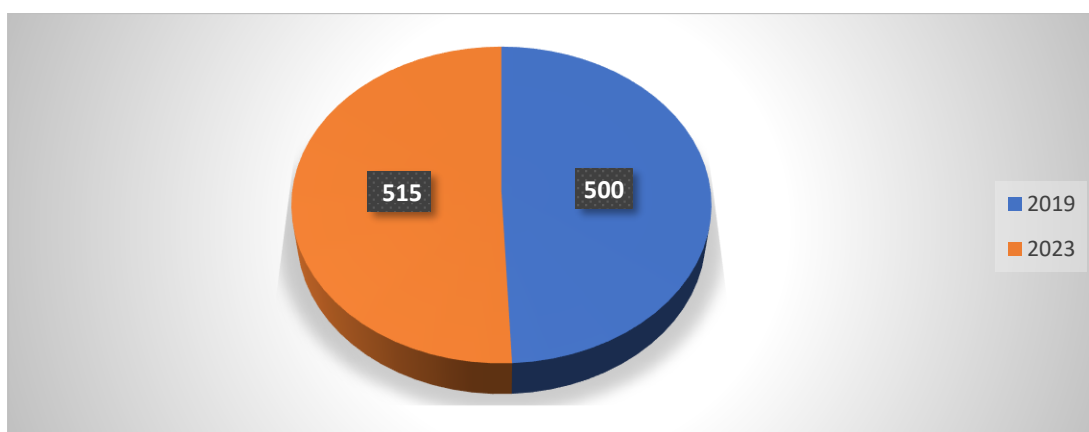


Figure 77: Comparison of the National Mean of English

Table 72: Comparison of the National Mean of Nepali

Years	National mean
2019	500
2023	499

Nepali scores stayed almost the same, changing only from 500 to 499. This means students' performance did not improve or decline much. The learning level in Nepali is stable

across years. Students are maintaining the same level of achievement in Nepali. The following chart shows the national means for the Nepali subject.

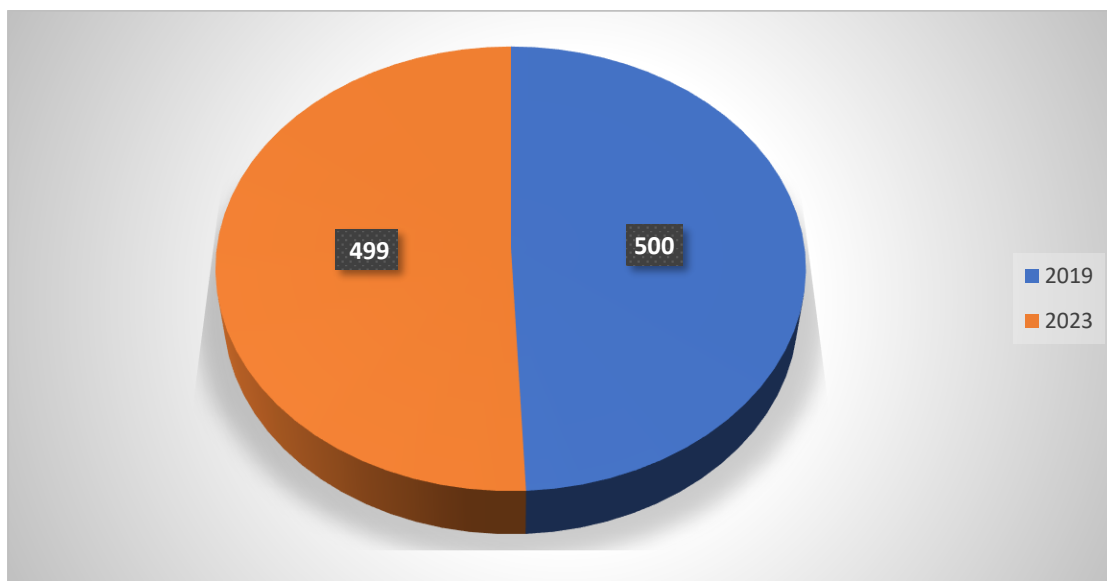


Figure 78: Comparison of the National Mean of Nepali

Table 73: Analysis of Proficiency Level in Math

Proficiency level	Percentage
Below basic	0.9
Basic	19.5
Proficient 1	39.6
Proficient 2	27.1
Proficient 3	11.5
Advanced	1.4

Most students achieve the basic and mid-proficiency levels in math. Only a small number reach the advanced level. Very few students are in the below-basic category, which is positive. Overall, math performance is moderate but still needs more support for higher-level skills. The following diagram shows the proficiency level in math.

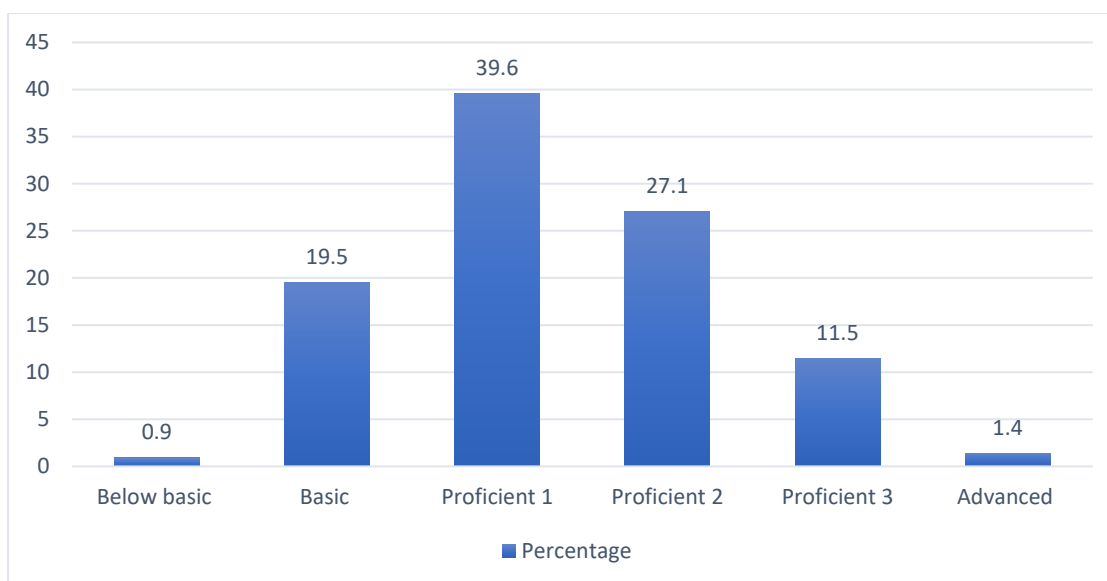


Figure 79: Analysis of Proficiency Level in Math

Table 74: Analysis of Proficiency Level in Science

Proficiency level	Percentage
Below basic	12
Basic	17.4
Proficient 1	20.8
Proficient 2	19.6
Proficient 3	14.6
Advanced	6.4

Science is widely represented across all proficiency levels. A large portion of students are grouped in the lower and middle levels. Only a small group reaches the advanced level. This indicates that many students continue to struggle to develop strong scientific skills. The following diagram shows the proficiency level in science.

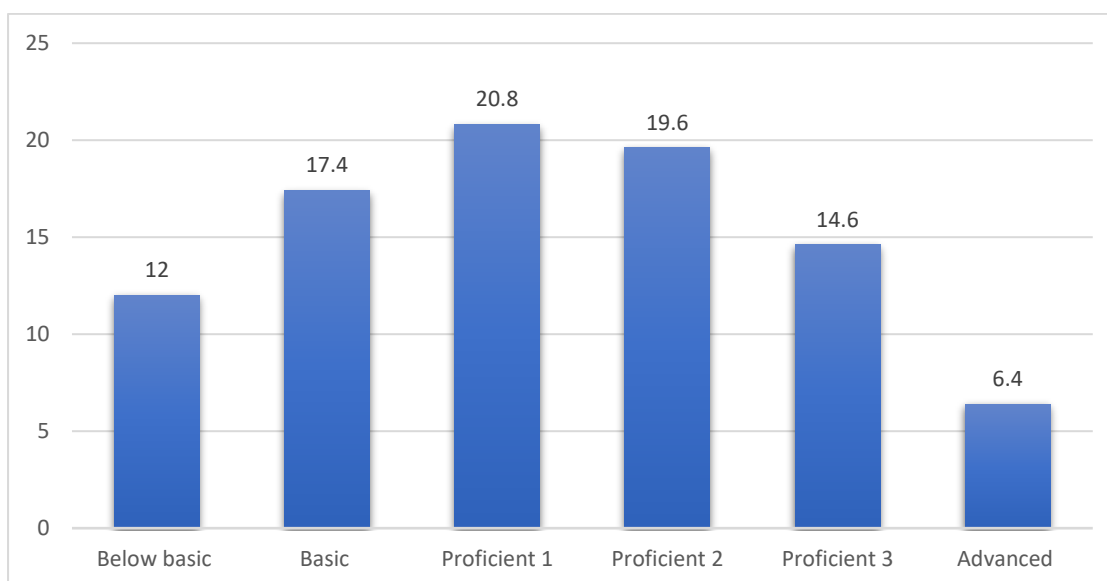
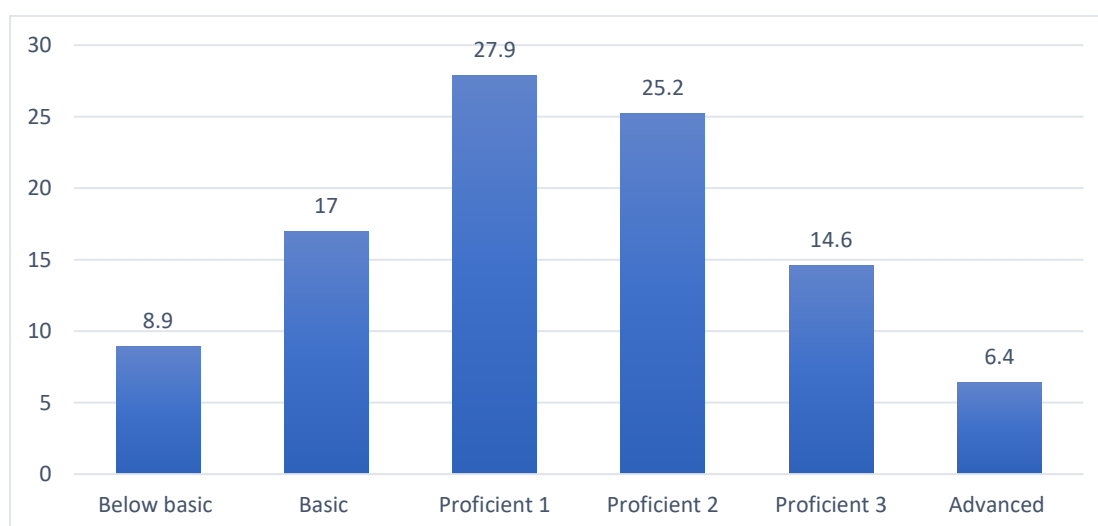


Figure 80: Analysis of Proficiency Level in Science

Table 75: *Analysis of Proficiency Level in Nepali*

Proficiency level	Percentage
Below basic	8.9
Basic	17
Proficient 1	27.9
Proficient 2	25.2
Proficient 3	14.6
Advanced	6.4

Most students in Nepali fall in the middle proficiency categories. Only a small percentage of students perform at the advanced level. The spread suggests that students have average language skills. Improvement is needed to help more learners reach higher proficiency levels. The following diagram shows the proficiency level in Nepali subject.

**Figure 81:** Analysis of Proficiency Level in Nepali**Table 76:** *Analysis of Proficiency Level in English*

Proficiency level	Percentage
Below basic	3.6
Basic	8.6
Proficient 1	17.2
Proficient 2	20.9
Proficient 3	17.3
Advanced	32.4

English shows the strongest results among all subjects. Many students fall in the advanced category, which is impressive. Only a small portion is in the lower levels. This means English language learning is progressing very well across the country. The following diagram shows the proficiency level in English.

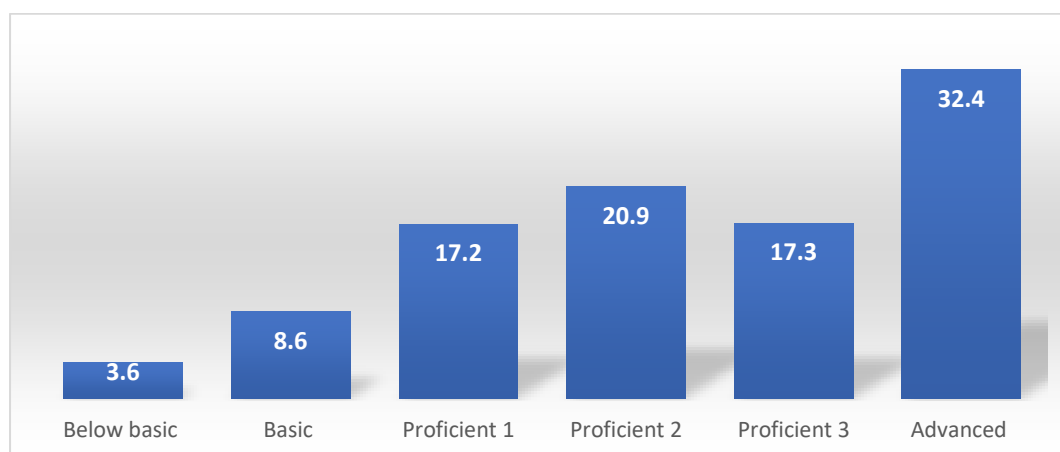


Figure 82: Analysis of Proficiency Level in English

Table 77: National Mean of Math Regarding Province in 2023

Province	National mean	Achievement
Koshi	500	499
Madhes	500	505
Bagmati	500	517
Gandaki	500	511
Lumbini	500	491
Karnali	500	472
Sudurpaschim	500	490

Bagmati and Gandaki show the strongest performance in math. Provinces like Karnali and Sudurpaschim score much lower. This creates a clear gap between high-performing and low-performing regions. The results show that math learning opportunities vary across provinces. The following diagram shows the national mean of math for provinces.

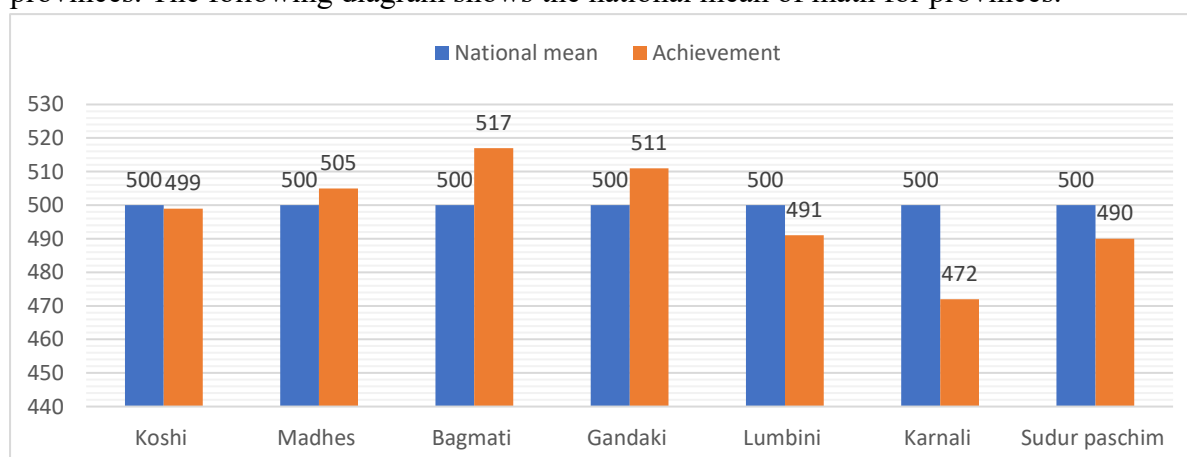
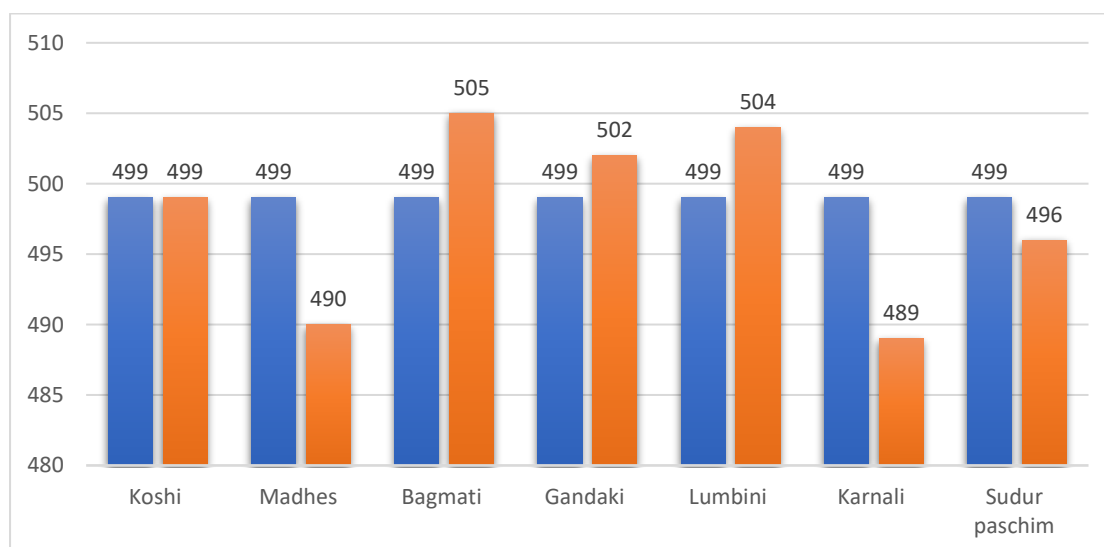


Figure 83: National Mean of Math by Province in 2023

Table 78: *National Mean of Nepali Regarding Province in 2023*

Province	National mean	Achievement
Koshi	499	499
Madhes	499	490
Bagmati	499	505
Gandaki	499	502
Lumbini	499	504
Karnali	499	489
Sudur paschim	499	496

Bagmati, Gandaki, and Lumbini score slightly above the national mean in Nepali. Madhes and Karnali show the lowest results. This shows uneven Nepali language achievement across the country. Some provinces are performing well while others need more support. The following diagram shows the national mean of Nepali subject regarding provinces.

**Figure 84:** National Mean of Nepali Regarding Province in 2023**Table 79:** *National Mean of English Regarding Province in 2023*

Province	National mean	Achievement
Koshi	515	520
Madhes	515	504
Bagmati	515	536
Gandaki	515	534
Lumbini	515	516
Karnali	515	490
Sudur paschim	515	492

Bagmati and Gandaki score far above the national average in English. Karnali and Sudurpaschim remain far behind. The difference between provinces is quite large. English learning appears stronger in more developed provinces. The following diagram shows the national mean of English in provinces.

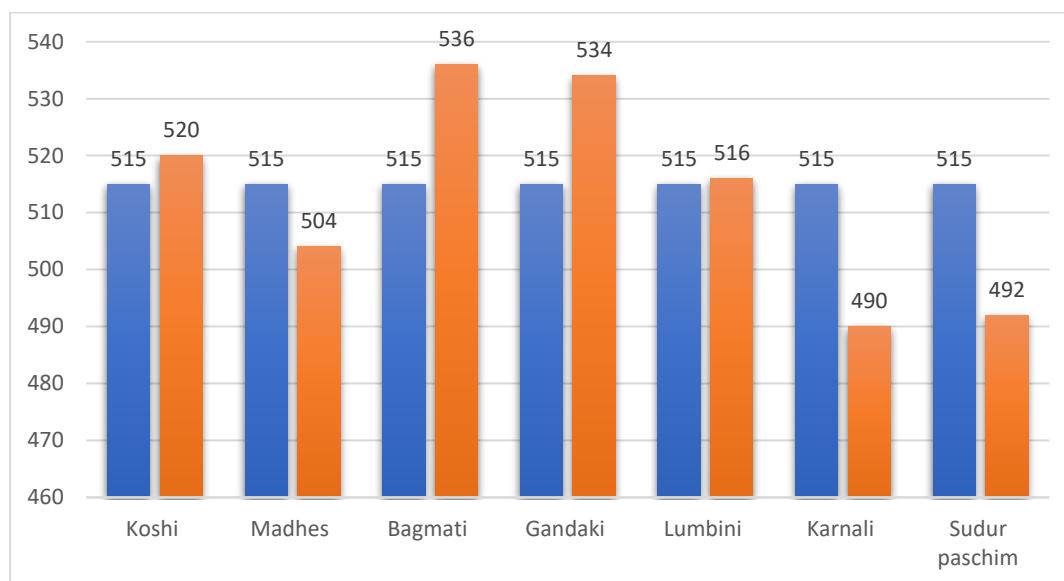


Figure 85: National Mean of English Regarding Province in 2023

Table 80: National Mean of Science Regarding Province in 2023

Province	National mean	Achievement
Koshi	505	497
Madhes	505	496
Bagmati	505	530
Gandaki	505	508
Lumbini	505	504
Karnali	505	487
Sudurpaschim	505	488

Bagmati and Gandaki have the highest science scores. Karnali and Sudurpaschim perform at the lowest levels. The gap between these regions shows large differences in science learning quality. Some provinces clearly have stronger educational environments than others. The following diagram shows the national mean of science regarding provinces.

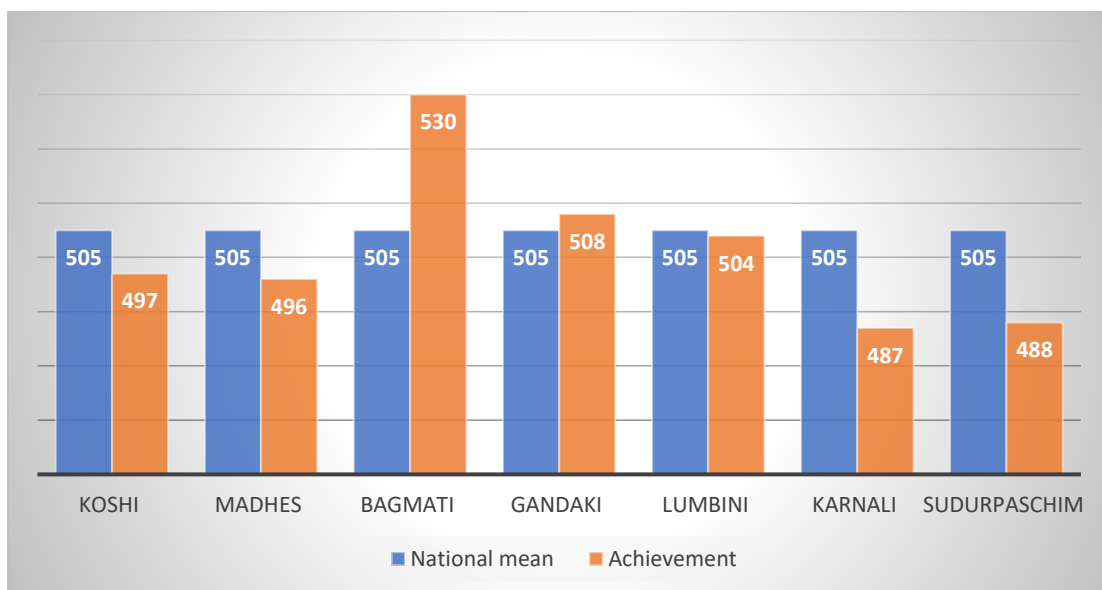


Figure 86: National Mean of Science Regarding Province in 2023

Table 81: Comparison of Learning Outcomes based on Gender Regarding all Subjects

Subjects	Girls	Boys
Nepali	501	496
English	512	519
Math	493	507
Science	499	512

Girls perform better in Nepali, showing strength in local language skills. Boys perform higher in English, math, and science. The gap is especially noticeable in math and science. Each gender shows different academic strengths. The following diagram shows the gender-wise outcomes regarding all subjects.

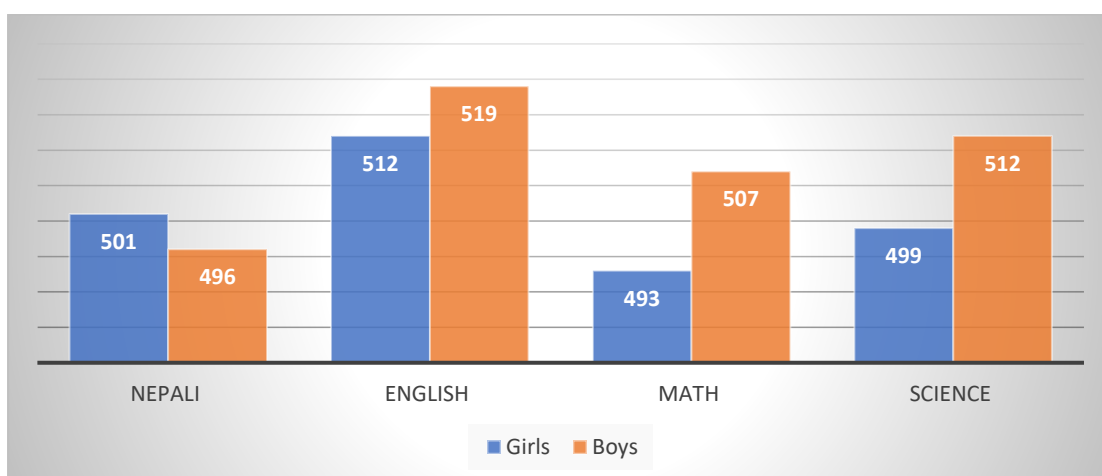


Figure 87: Comparison of Learning Outcomes based on Gender Regarding all Subjects

Table 82: Comparison of Learning Outcomes of all Subjects based on School Type

Subjects	Community	Private
Nepali	497	504
English	503	562
Math	487	536
Science	496	540

Private school students score much higher in all subjects. English, math, and science show the biggest gaps. Students in community schools perform lower overall. These differences show that school type has a big impact on learning results. The following diagram shows the outcomes of students in all subjects regarding school type.

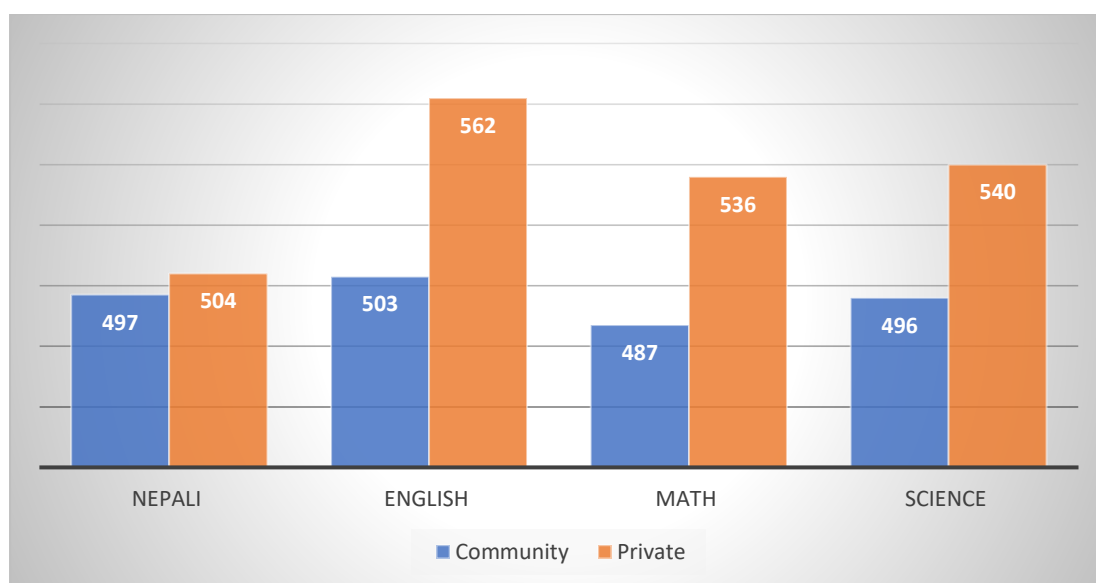


Figure 88: Comparison of Learning Outcomes of all Subjects based on School Type
Student Achievement Score in Reading and Numeracy (NARN, 2020-2024)

The achievement scores of reading and numeracy in the years 2020 and 2024 are analyzed in the given table and interpretation.

Table 83: *Student Achievement Score in Reading*

Year	2020	2024
Reading	43.5	44.9

Reading scores increased slightly between 2020 and 2024. The improvement is small but consistent. Students are reading a little better than before. This shows slow but positive progress in reading ability. The following diagram shows the achievement scores in reading.

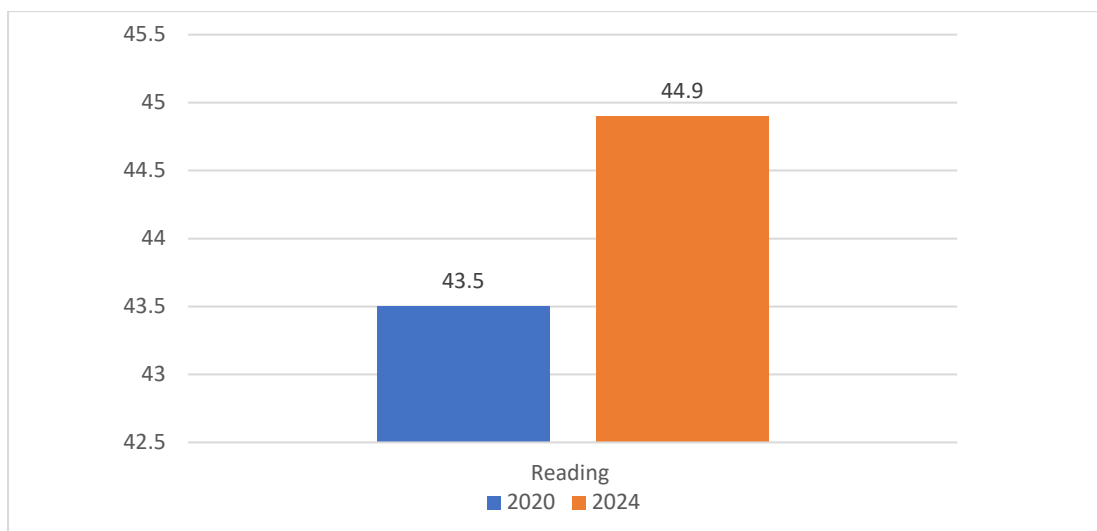


Figure 89: Student Achievement Score in Reading

Table 84: Student Achievement Score in Numeracy

Year	2020	2024
Numeracy	37.22	50.16

Numeracy scores improved dramatically from 2020 to 2024. The increase is much larger than in reading. This suggests that numeracy instruction may have improved. Students are showing much stronger numeracy skills now. The following diagram shows the achievement scores in numeracy.

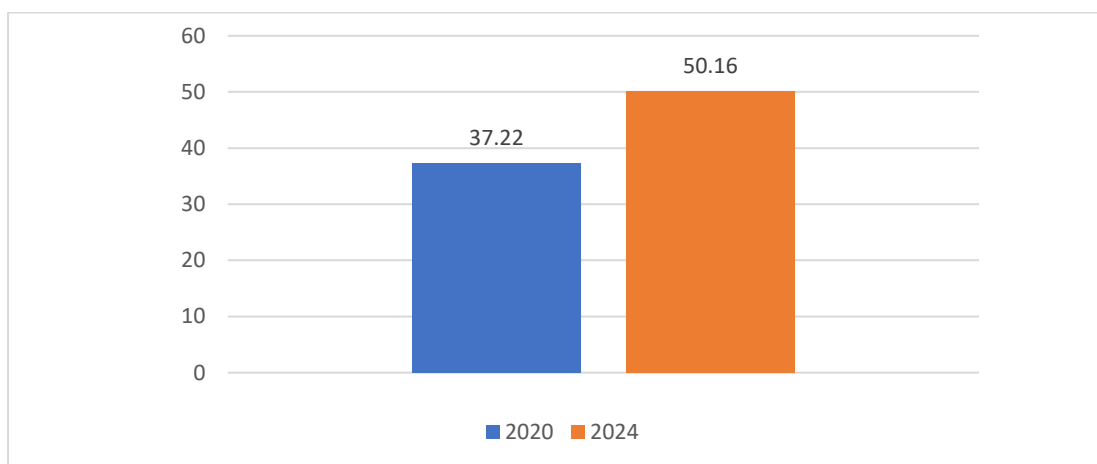


Figure 90: Student Achievement Score in Numeracy

Table 85: Students' Achievements in Sub-tasks of Reading

Sub-tasks	Achievement
Word identification	58.4
Dictations	36.9
Vocabulary	52.9
Picture descriptions	26.7
Reading comprehension	57.5

Students perform best in word identification and reading comprehension. They struggle the most with picture descriptions and dictation. This shows that basic reading skills are stronger than expressive or creative tasks. More focus is needed on creative and descriptive abilities. The following diagram shows the achievement scores in the sub-task of reading.

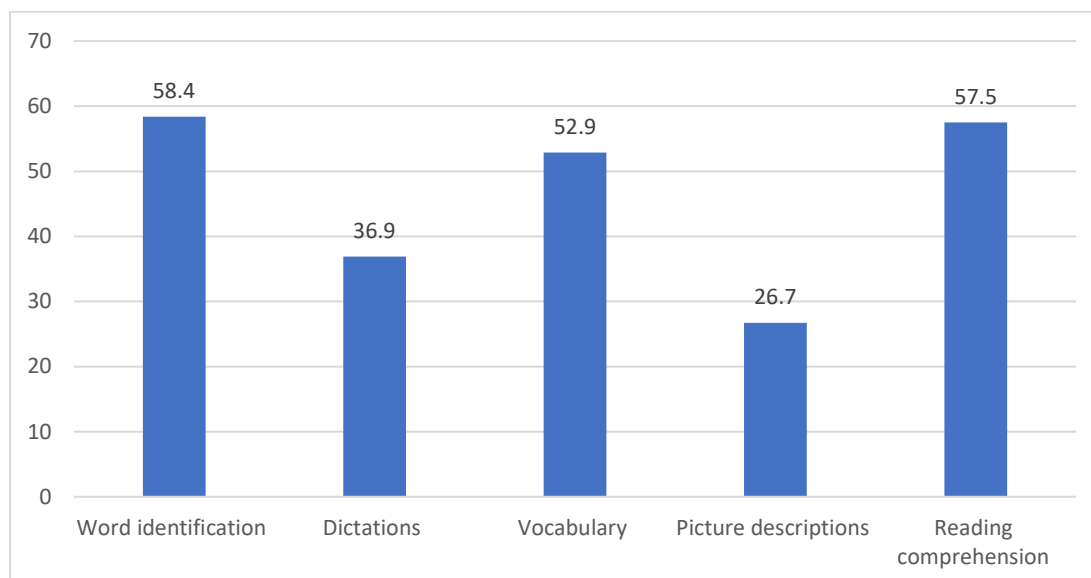


Figure 91: Students' Achievements in Sub-tasks of Reading

Table 86: Students' Achievements in Sub-tasks of Numeracy

Sub-tasks	Achievement
Geometric shape identification	44.7
Angle identification	56.3
Number identifications	48.4
Use of arithmetic operations	45.7
Fraction	43.6
Clock reading	38.7
Identification of currency	73.2
Reading a simple graph	78.2

Students do very well in reading simple graphs and identifying currency. They struggle more with clock reading, fractions, and shapes. This means students find practical tasks easier than abstract ones. More support is needed in areas that require reasoning and conceptual understanding. The following diagram shows the achievement scores in sub-task of numeracy.

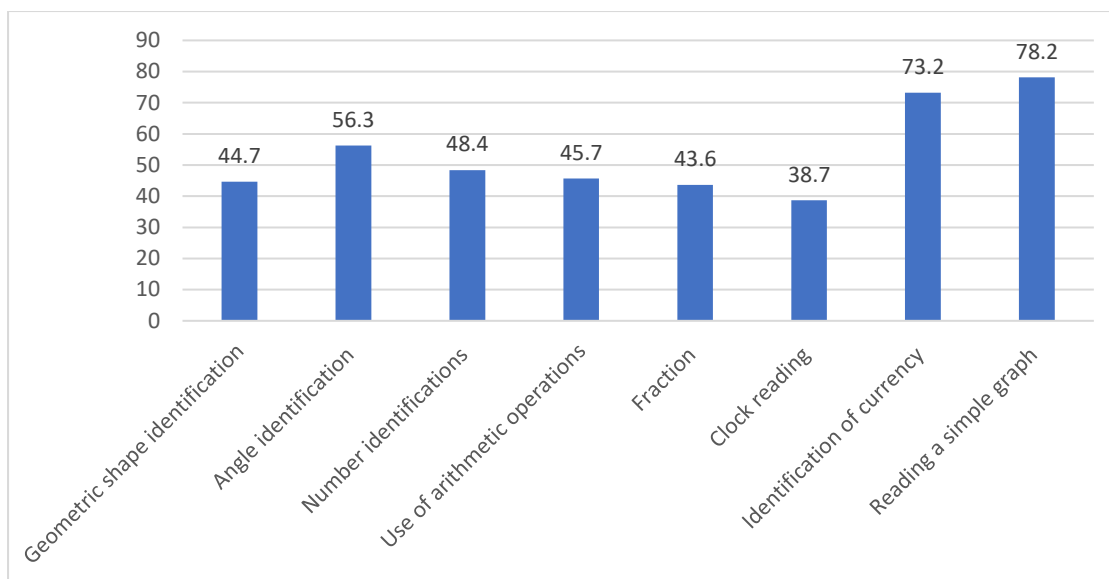


Figure 92: Students' Achievements in Sub-tasks of Numeracy

Table 87: Students' Achievements in Reading by Province

Province	Achievement
Koshi	52.8
Madhesh	38.7
Bagmati	52.7
Gandaki	61.4
Lumbini	43.1
Karnali	38.8
Sudurpashchim	40.9

Gandaki has the strongest reading scores among all provinces. Koshi and Bagmati also perform well. Madhes and Karnali have the lowest reading scores. Reading skills vary widely depending on the province. The following diagram shows the achievement scores in reading by province.

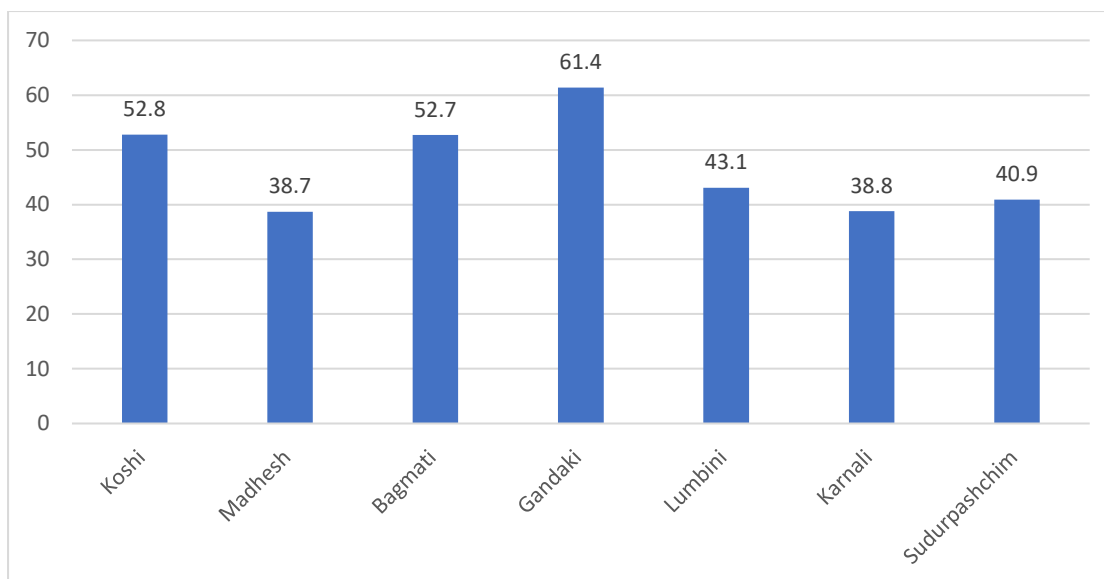


Figure 93: Students' Achievements in Reading by Province

Table 88: Students' Achievements in Numeracy by Province

Province	Achievement
Koshi	54.8
Madhesh	53.7
Bagmati	47.6
Gandaki	61.1
Lumbini	44.8
Karnali	42.2
Sudurpashchim	46.1

Gandaki leads in numeracy achievement, showing strong math skills. Karnali scores the lowest among provinces. Bagmati, Koshi, and Sudurpaschim show mixed performance. Numeracy results vary across regions. The following diagram shows the achievement scores in numeracy for each province.

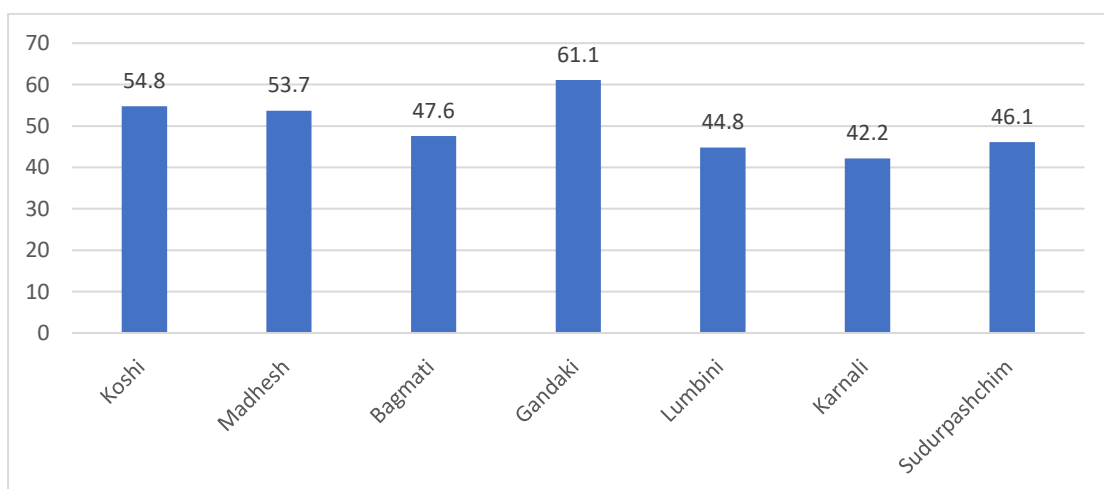
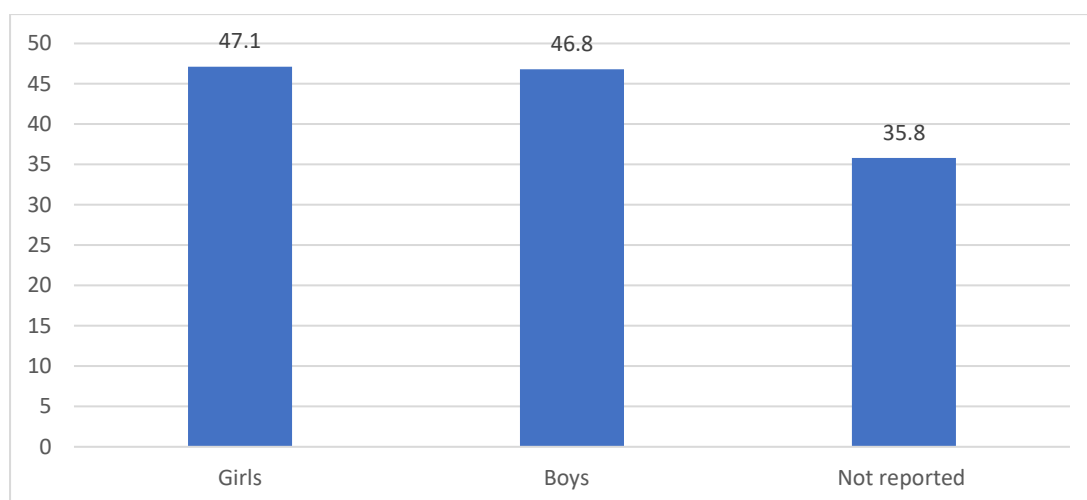


Figure 94: Students' Achievements in Numeracy by Province

Table 89: *Students' Achievements in Reading by Gender*

Gender	Achievement
Girls	47.1
Boys	46.8
Not reported	35.8

Girls score slightly higher than boys in reading. The difference is small but noticeable. Both genders have similar reading abilities overall. One group called "not reported" scores much lower. The following diagram shows the achievement scores in reading by gender.

**Figure 95:** *Students' Achievements in Reading by Gender***Table 90:** *Students' Achievements in Sub-task of Reading by Gender*

Sub-tasks	Girls	Boys
Word identification	61.2	61.1
Dictations	39.3	38.3
Vocabulary	54.2	55.2
Picture descriptions	28.7	28.0
Reading comprehension	59.6	59.9

Girls and boys perform almost equally in all reading sub-tasks. Boys are slightly better in vocabulary and comprehension. Girls are slightly better in dictation and picture description. The differences are very small, showing balanced reading skills. The following diagram shows the achievement scores in the sub-task of reading by gender.

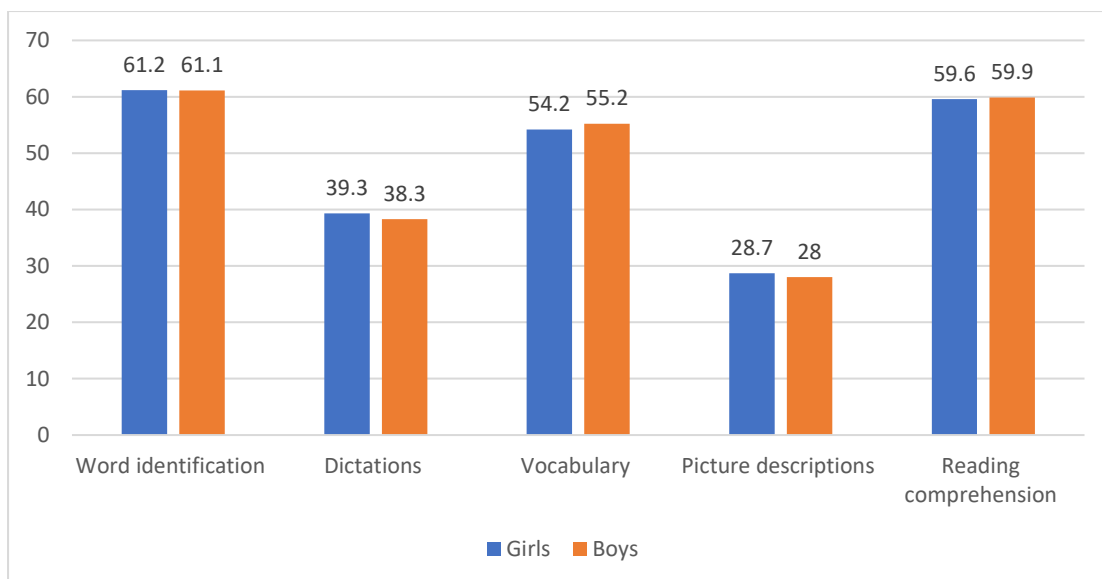


Figure 96: Students' Achievements in the Sub-task of Reading by Gender

Table 91: Students' Achievements in Numeracy by Gender

Gender	Achievement
Girls	49.9
Boys	53.2

The achievement score of boys is higher than girls in numeracy. The gap is noticeable across all tasks. This suggests boys have stronger basic math skills. However, both groups still need support in several areas. The following diagram shows the achievement scores in numeracy by gender.

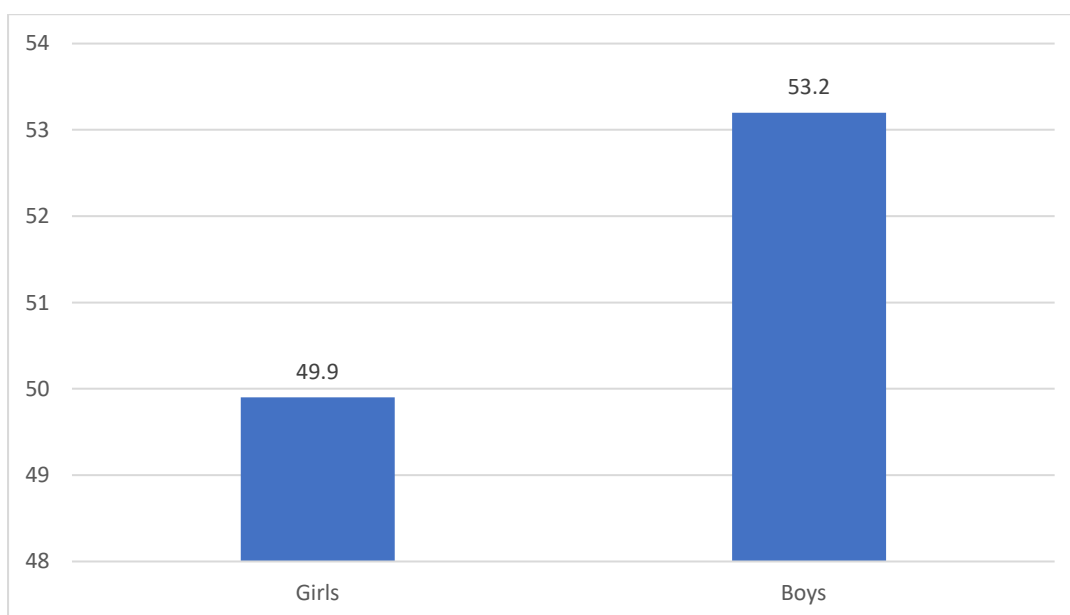
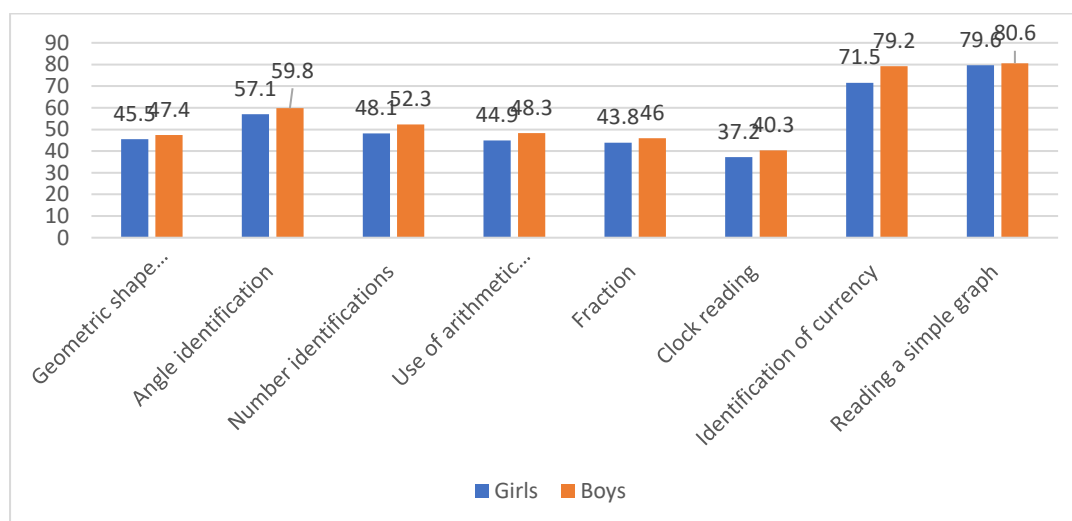


Figure 97: Students' Achievements in Numeracy by Gender

Table 92: *Students' Achievements in the Sub-task of Numeracy by Gender*

Sub-tasks	Girls	Boys
Geometric shape identification	45.5	47.4
Angle identification	57.1	59.8
Number identifications	48.1	52.3
Use of arithmetic operations	44.9	48.3
Fraction	43.8	46.0
Clock reading	37.2	40.3
Identification of currency	71.5	79.2
Reading a simple graph	79.6	80.6

Boys score higher in most numeracy sub-tasks. The biggest differences appear in currency identification and number identification. Girls perform similarly in some areas but still remain slightly behind. These results show boys have a small edge in practical and numeric tasks. The following diagram shows the achievement scores in the sub-task of numeracy by gender.

**Figure 98:** Students' Achievements in the Sub-task of Numeracy by Gender**Table 93:** *Students' Achievements in Reading by Ethnicity*

Ethnicity Group	Achievement
Madhesi B/C	42.5
Madhesi Janjati	44.2
Madhesi Dalit	43.1
Madhesi Others	46.3
Pahadi B/C	51.8
Pahadi Janjati	55.0

Pahadi Dalit	51.4
Pahadi Others	56.0
Himali B/C	36.8
Himali Janjati	56.0
Himali Dalit	46.8
Himali Others	25.3

Reading achievement varies widely across ethnic groups, with Pahadi Others and Himali Janjati scoring the highest. Himali's Others score the lowest, indicating a learning gap. Overall, Pahadi groups perform above the national average, whereas many Madhesi and Himali groups remain below it. The following picture visualizes the reading achievement regarding ethnicity.

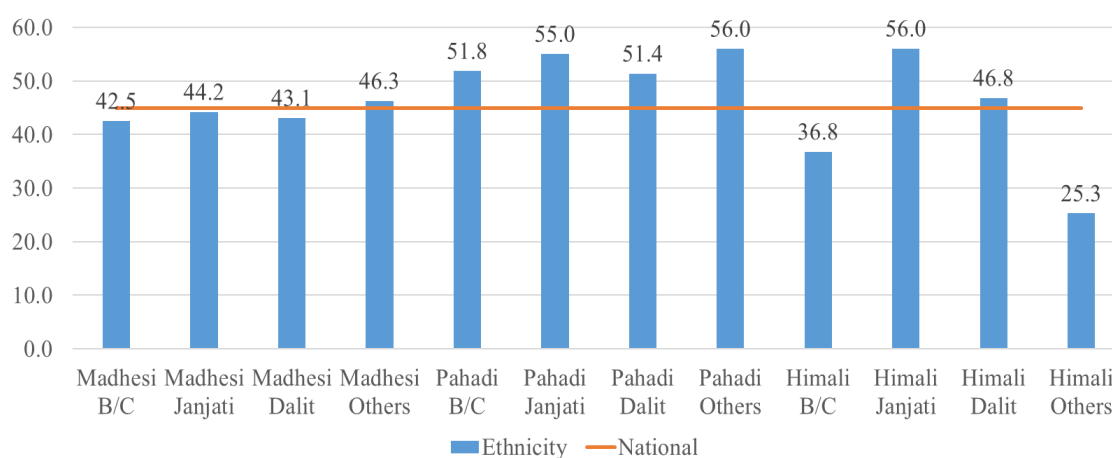


Figure 99: Students' Achievements in Reading by Ethnicity

Table 94: Students' Achievements in Numeracy by Ethnicity

Ethnicity Group	Achievement
Madhesi B/C	47.5
Madhesi Janjati	53.7
Madhesi Dalit	51.6
Madhesi Others	60.5
Pahadi B/C	52.6
Pahadi Janjati	53.2
Pahadi Dalit	53.1
Pahadi Others	51.1
Himali B/C	38.8
Himali Janjati	41.7
Himali Dalit	46.6
Himali Others	26.7

Numeracy performance is highest among Madhesi Others, followed closely by several Pahadi groups. Himali groups consistently score far below the national average, especially Himali Others. Overall, ethnic disparities are evident, with Madhesi and Pahadi groups performing better than the Himali communities. The following picture visualizes the numeracy performance regarding ethnicity.

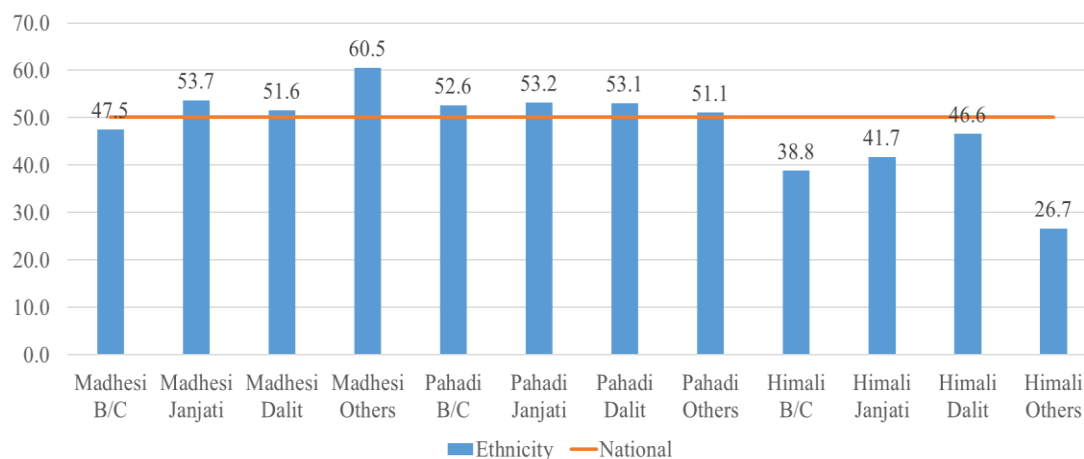


Figure 100: Students' Achievements in Numeracy by Ethnicity

Summary of Findings

1. In grade three, between 2012 and 2015, the national mean scores declined noticeably in both subjects, with Nepali falling from 63 to 52 and Mathematics dropping from 60 to 45. Girls slightly outperformed boys in Nepali in both years, while boys and girls performed equally in Mathematics. Community schools consistently recorded lower mean scores than the national average in both subjects and both years. Institutional schools achieved higher scores than community schools, although their results also declined sharply by 2015. Overall, the data indicate a general downward trend in achievement across subjects, genders, and school types, with persistent disparities between community and institutional schools.
2. Between 2020 and 2024, the national mean score in Reading increased slightly from 43.53 to 44.9, showing modest improvement. In Numeracy, the national mean rose from 37.22 to 50.16, indicating strong progress over the period. In 2020, boys performed slightly better than girls in Numeracy (39.11 to 35.92), while Reading performance between girls and boys was nearly equal. In 2024, detailed gender data for Reading are not available, limiting gender comparison for that subject. However, in Numeracy 2024, boys (53.2) outperformed girls (49.9), suggesting a widening gender gap in favor of boys in mathematics-related skills.
3. Gandaki, Koshi, and Bagmati provinces lead in both reading and numeracy, while Karnali, Madhes, and Sudurpashchim have low achievement. Gender differences in reading are small, with girls slightly ahead, whereas boys outperform girls in numeracy. Ethnic disparities are evident, with Madhesi and Pahadi groups generally scoring higher than the Himali communities. Overall, progress is visible, but gaps remain across skills, regions, genders, and ethnic groups, highlighting the need for targeted support.

4. In grade five, between 2012 and 2015, the national mean scores declined in all three subjects, with Nepali dropping from 60 to 46, Mathematics from 53 to 48, and English from 54 to 47. In 2012, girls slightly outperformed boys in Nepali, while boys performed slightly better in Mathematics and English; however, by 2015, gender differences became minimal across subjects. Community schools generally recorded lower scores than institutional schools in most subjects and both years, although English in 2012 shows an unusual pattern where community schools (66) scored higher than the national mean. Institutional schools consistently achieved the highest scores in all subjects despite experiencing declines by 2015. Overall, the data indicate a downward trend in student achievement over time, with persistent disparities between community and institutional schools.
5. Between 2018 and 2022, the national mean score in Nepali remained almost stable, slightly decreasing from 500 to 499, while Mathematics declined more noticeably from 500 to 485. In 2018, girls slightly outperformed boys in Nepali, whereas boys performed marginally better in Mathematics, showing very small gender differences overall. In 2022, girls scored higher than boys in Nepali (503 to 496), but Mathematics results remained nearly equal between genders. Community schools recorded lower performance compared to institutional schools in both years, although the 2022 figures appear to be presented in percentage form (36.7 to 63.3 in Nepali and 39.5 to 60.5 in Math), indicating strong institutional advantage. English and Science results for 2022 cannot be compared with 2018 due to the absence of corresponding baseline data.
6. In grade eight, between 2011 and 2013, the national mean score in Nepali slightly declined from 49 to 48, while Mathematics dropped sharply from 43 to 35. In 2011, boys outperformed girls in Mathematics (45 to 41), but in Nepali their performance was almost equal; by 2013, gender differences in Nepali disappeared, while boys continued to score higher in Mathematics (38 to 33). Community schools consistently recorded much lower scores than institutional schools in both years and both subjects. The achievement gap between community and institutional schools was especially wide in Mathematics, increasing from 39 to 63 in 2011 to 26 to 57 in 2013. Social Studies (2011) and English (2013) cannot be compared due to the absence of corresponding data for both years.
7. Between 2017 and 2020, the national mean score in Nepali remained stable at 500, while Mathematics declined from 500 to 483 and Science dropped more sharply from 500 to 470. In 2017, gender differences were minimal in Nepali, boys outperformed girls in Mathematics (505 to 495), and boys also scored slightly higher in Science (503 to 498). In 2020, girls slightly outperformed boys in Nepali (502 to 499), but boys continued to perform better in Mathematics (490 to 478) and Science (473 to 468). Community and institutional school results for 2020 in Nepali and Mathematics are not comparable due to reporting in percentage form, limiting school-type analysis for those subjects. However, in Science 2020, institutional schools (500) performed considerably better than community schools (463), maintaining the institutional advantage observed in 2017.

8. National performance shows mixed progress in grade 10 in the NASA report 2023. Science scores increased slightly from 500 (2019) to 505 (2023), English improved strongly from 500 to 515, and Nepali stayed almost the same at 499. Most students are in basic and mid-level proficiency; only a few reach advanced levels, except in English, where 32.4% achieve advanced proficiency.
9. Large provincial disparities exist as Bagmati and Gandaki consistently score highest (Math 517, English 536, Science 530), while Karnali and Sudurpaschim lag behind (Math 472, English 490, Science 487). Gender differences show that girls perform better in Nepali (501 > 496), whereas boys perform better in English, math, and science.
10. School type strongly affects achievement; private school students perform better than community school students in all subjects, with large gaps in English (562 > 503), math (536 > 487), and science (540 > 496). Overall, progress exists in some areas, but gaps by subject, province, gender, and school type remain different.

Trends in Math

- The Mathematics data reveal a consistent pattern of decline across multiple grades, years, and social groups, with only limited areas of stability and improvement. Overall achievement in Grade 8 declined between 2011 and 2013 (43 to 35) and again between 2017 and 2020 (500 to 483), indicating persistent challenges in mathematics learning outcomes.
- Content-wise, Algebra showed improvement at Grade 3 between 2012 and 2015, but most other domains—including Geometry, Arithmetic, and Statistics—declined across grades, with Algebra at Grade 8 experiencing one of the sharpest drops (48 to 28). At the cognitive level, performance decreased notably in Knowledge, Comprehension, and Application across Grades 3, 5, and 8, while Higher Ability skills remained consistently weak, highlighting limited development of higher-order mathematical thinking.
- Proficiency distributions in Grade 8 further show a shift from higher to lower-middle performance bands between 2017 and 2020, suggesting a downward movement in advanced achievement.
- Geographically, strong regional disparities persist. The Valley consistently recorded the highest achievement across grades and years, while Mountain and some remote regions lagged behind. Rural–urban gaps widened particularly at Grade 8, where rural scores dropped sharply while urban performance remained comparatively stronger.
- Provincial data show overall declines between assessment cycles, with Bagmati and Gandaki generally performing better, and Karnali and Sudur Pashchim remaining among the lowest-performing provinces. Ecological zone comparisons confirm these inequalities, although differences were smaller in the later Grade 8 (2017–2020) cycle.
- Social and demographic disparities are also evident. Gender gaps were generally small, with boys slightly outperforming girls in most years, though in Grade 8 (2011–2013) the gap temporarily reversed due to a sharper decline among boys. Caste and ethnicity data reveal persistent inequalities: while some groups improved in lower

grades, Grade 8 results (2011–2013) showed substantial declines across all groups, particularly among Dalit and Madhesi students.

- Later Grade 8 data (2017–2020) show more mixed trends, with some improvement among Dalit and “Other” groups, though disparities remain. Home language differences persist as well, with Nepali-speaking students generally outperforming others, though both groups experienced declines in later years.
- Institutional factors strongly influence achievement. Institutional schools consistently outperform community schools across all grades and years, despite both experiencing overall declines. Parental education shows a clear positive relationship with student achievement: students whose fathers or mothers have higher educational qualifications consistently achieve higher mean scores. However, even these groups experienced downward trends in recent years.
- Parental occupation is associated with performance, as students from professional or government-employed backgrounds generally score higher than those from agricultural or household occupations, though declines are visible across nearly all occupational categories over time.
- After-school support, including tuition, is associated with relatively higher achievement compared to other support types, but performance declined across all categories in recent cycles. Even students receiving tuition and parental help showed decreasing mean scores, indicating that broader systemic factors may be influencing mathematics learning.
- Overall, the Mathematics findings demonstrate a sustained decline in achievement across grades, cognitive levels, regions, and social groups, with persistent structural inequalities linked to geography, school type, parental education, occupation, caste/ethnicity, and language background. While some localized improvements are visible, the general trend points to weakening foundational skills and limited growth in higher-order mathematical competencies.

Trends in Science

- The Science findings indicate a clear pattern of decline at Grade 8 (2017–2020) followed by partial recovery at Grade 10 (2019–2023), alongside persistent socio-demographic disparities. Provincially, all provinces experienced declines in Grade 8, with Bagmati consistently remaining the highest-performing province and Madhesh showing the sharpest drop.
- By Grade 10, most provinces demonstrated recovery, again led by Bagmati, while Madhesh showed notable improvement, though inter-provincial gaps persisted.
- Gender disparities were consistent across all years, with boys outperforming girls in both Grade 8 and Grade 10; although both groups improved at Grade 10, the gender gap remained evident. Home language differences also persisted, as Nepali-speaking students outperformed students from other language backgrounds in both 2019 and 2023, though the gap narrowed slightly due to gains among non-Nepali speakers.

- School type showed one of the strongest and most stable disparities: institutional schools outperformed community schools in both years at Grade 10, with only modest improvement among community schools and a consistently wide achievement gap.
- Parental education demonstrated a strong positive relationship with student performance, particularly at Grade 10, where students whose fathers or mothers held Bachelor's or Master's degrees achieved the highest scores. While Grade 8 saw broad declines across all maternal education levels between 2017 and 2020, Grade 10 results were generally higher and more stable, confirming the strong influence of parental education.
- Similarly, parental occupation was closely associated with achievement: students whose parents worked in professional or formal sectors (teaching, government service, business, foreign employment) consistently outperformed those from agricultural or household backgrounds. Although most occupational groups experienced declines in Grade 8, partial recovery was visible in Grade 10.
- After-school support showed mixed patterns. Students receiving tuition or peer support generally performed well, yet interestingly, those reporting no support recorded the highest scores in both 2019 and 2023, suggesting that higher-performing students may be more independent learners.
- Homework and feedback frequency showed slight advantages for regular participation at Grade 8, but by Grade 10, performance differences across participation levels were minimal, indicating that other structural and socio-economic factors may exert stronger influence at higher grades.
- Overall, the Science data highlight a temporary downturn at Grade 8 followed by recovery at Grade 10, with persistent inequalities linked to province, gender, language background, school type, parental education, and occupation.

Trends in Nepali

- The findings from Nepali achievement data reveal substantial fluctuations across grades, years, and background variables. At Grade 3, performance between 2012 and 2015 showed mixed trends: reading (64 to 54) and writing (54 to 41) declined notably, while grammar (57 to 65) and vocabulary (60 to 75) improved, indicating gains in language structure and word knowledge despite weaker literacy skills.
- However, cognitive performance declined overall, with knowledge (72 to 64), comprehension (65 to 56), and application (56 to 51) all decreasing. At Grade 5, the decline was more severe between 2012 and 2015, as reading (56 to 38.6), writing (58 to 33), grammar (64 to 37.5), and vocabulary (70 to 52.4) all dropped sharply. Similarly, cognitive levels showed substantial losses, particularly in application (61 to 32.1) and higher ability (47 to 31.2), indicating weakening higher-order skills.
- Diversity analysis at Grade 3 and Grade 5 revealed widespread declines across ecological zones, school location, and social groups, with rural students, Mountain regions, and Madhesi and minority groups experiencing larger drops. Institutional

schools consistently outperformed community schools, though both saw significant declines during this period.

- Parental education demonstrated a strong positive relationship with achievement in 2012, but the sharp fall in 2015 reduced performance across all education levels, narrowing earlier gaps. Likewise, students receiving homework, feedback, and after-school support performed better in 2012, yet all support categories declined markedly by 2015.
- More recent Grade 5 data (2018–2022) show relative stabilization and modest improvement. Provincial scores improved slightly in most provinces, though Sudurpaschim declined marginally.
- Nepali home-language students maintained higher scores than non-Nepali speakers, though the gap remained moderate. Notably, girls' performance improved (499 to 502.8) while boys declined slightly (501 to 495.89), reversing earlier gender patterns. Higher parental education remained strongly associated with better performance, especially at Bachelor's and Master's levels, and students receiving tuition support continued to achieve the highest scores.
- At Grade 10, school-type disparities widened between 2019 and 2023, as community schools declined sharply (525 to 485.18) while institutional schools improved (491 to 522.86), reversing the earlier pattern and creating a larger institutional advantage.
- Overall, the Nepali achievement data indicate sharp declines in the earlier assessment cycle (2012–2015), partial recovery and stabilization after 2018 at Grade 5, persistent socio-economic and geographic disparities, and an expanding school-type gap at the secondary level.

Trends in English

- The findings from English achievement data reveal contrasting trends between Grade 5 and Grade 10, highlighting both learning declines and later recovery. In Grade 5, national mean scores dropped from 53.61 in 2012 to 46.78 in 2015, indicating an overall decline in English performance.
- By content area, reading (50.2 to 45.7) and writing (49 to 40.2) declined sharply, grammar decreased slightly (56.5 to 53.4), while vocabulary improved (57.8 to 62.2), suggesting gains in word knowledge despite weaker literacy skills. At the cognitive level, knowledge (64 to 55.5) and comprehension (50 to 41.5) declined, whereas application (49 to 53.4) and higher ability (35 to 39.2) showed modest improvement.
- Demographic analysis revealed widespread declines across gender, ecological zones, school location, and school type, with particularly large drops in Mountain (61.1 to 41.4) and Valley (77.5 to 57.1) regions. Urban students continued to outperform rural students, and institutional schools maintained a substantial advantage over community schools despite overall declines.
- Parental education showed a strong positive relationship with achievement in 2012, but scores fell across all education levels by 2015, though children of more educated parents still performed better. Similarly, students whose parents worked in

professional occupations such as services, teaching, and business achieved higher scores, yet declines were observed across nearly all occupational groups.

- In contrast, Grade 10 results show clear improvement between 2019 and 2023. Proficiency levels shifted upward dramatically, with pre-basic students decreasing from 30% to 4% and advanced-level students increasing from 9% to 32%, indicating substantial overall progress.
- Mean scores improved across all demographic groups: boys (506 to 519) and girls (496 to 512) both gained, slightly narrowing the gender gap. All caste/ethnic groups showed improvement, with Brahmin/Chhetri remaining highest but Dalit students also making notable gains (487 to 504).
- Nepali home-language students outperformed others, though both groups improved. Institutional schools continued to score higher than community schools (556 to 562 to 488 to 503), maintaining a persistent gap.
- Provincial data showed gains across all provinces, with Bagmati remaining highest and Karnali lowest, though all provinces improved.
- Parental education remained strongly associated with achievement, as students whose parents held Bachelor's or Master's degrees scored the highest, and improvements were observed across nearly all education levels. Similarly, students whose parents worked in business, teaching, and services achieved higher scores, but gains were evident across most occupational categories.
- Overall, the English data indicate a significant decline at Grade 5 between 2012 and 2015, followed by strong recovery and upward performance shifts at Grade 10 between 2019 and 2023, with persistent but slightly narrowing disparities linked to region, school type, parental background, and home language.

Chapter Four: Analysis and Interpretation of Qualitative Information

The analysis and interpretation of qualitative information are presented based on themes derived from the coding of transcripts of interviews, FGDs, and classroom observations in both institutional and community schools in Nepal. The information has been presented and interpreted under the broad themes of Achievement Gaps and Influencing Factors.

Achievement Gaps and Influencing Factors

1. Differences in Educational Achievement between Schools, Students, Subjects, Districts, and Provinces
2. Factors Causing Achievement Differences Across Schools
3. Data-Driven Approaches to Assess and Address Learning Disparities Between Different Groups
4. Reasons for Lower Student Learning Achievement: Because of Lower Economic and Social Background
5. Impact of Caste / Ethnicity and Home Learning Achievement
6. Differences in Achievement Between Boys and Girls

7. Reasons Behind Similar Types of Results of Different National Assessments of Student Achievement

Differences in Educational Achievement between Schools, Students, Subjects, Districts, and Provinces

Educational achievement varies among students' subjects, districts, and provinces. The Constitution of Nepal provides for seven provinces, seventy-seven districts, and 753 local administrative units. These all constitutionally divided administrative units have their topographical variations and have their varied human as well as physical resources. Because of the geographical locations, many places are devoid of natural as well as human resources, which has caused economic inequality among the people living there. The people living in these places have thus been divided into wealthier families and low-income families. The students from low-income families cannot afford the expenses to educate themselves in schools with sufficient resources located in urban areas. On the one hand, they lack private tutoring, parental involvement in their studies, and learning resources; on the other, they face cultural, social, and geographical barriers, such as a long distance from their homes to schools. Regarding this theme, the EDCU₇ expressed his view as: "Educational outcomes vary expressively by district, province, and School, with a notable lack of uniformity. Teacher management, particularly in rural areas, appears to impact results negatively, as learning achievements decline despite educational levels. The absence of remedial teaching provision and the limits on students' study time are the cause of disparity in education.

The participant's view expresses that educational outcomes in Nepal exhibit significant disparities across districts, provinces, and schools, compounded by ineffective teacher management, especially in rural areas where learning declines despite higher educational levels. The lack of remedial teaching limits study time. Similarly, another participant shares his views as follows: "The high enrollment in market-centric areas surprisingly correlates with increased achievement, even with fewer teachers. Many students prioritize studying abroad over completing their studies, complicating the situation. The federal system's implementation has led to chaos, as education officials lack the authority to make decisions, resulting in arbitrary authorizations and frustrations within institutions. Efforts to decentralize have stalled, resulting in issues for struggling students, and teacher protests have negatively impacted learning and credit hours.

The high enrollment in market-centric areas surprisingly correlates with increased achievement, and many students prioritize studying abroad, further complicating educational progress. The federal system's implementation has led to disorganization due to education officials' lack of authority, arbitrary authorizations, stalled decentralization efforts, and teacher protests, all of which have negatively impacted student learning and credit hours. Similarly, due to geographical location and other challenges, high-quality teachers are often reluctant to work in difficult areas (EDCU₁). If they have been posted there after passing the Teacher Service Commission examination, they do not remain there for long. The classroom observation data shows that almost all classes have been handled with the traditional methods of teaching, like teachers standing in front of the students, writing the topics on the board giving extensive explanations based on the text given in the text books, and giving some

fragmented examples and asking some yes/ No questions giving in groups and showing some pictures of the textbooks (IT₁ and CT₁).

The classroom observation information clearly shows that the teacher's inadequate preparation for the Nepali class led to a lack of engagement, as students primarily read without effective strategies, such as providing a summary and feedback. This resulted in inadequate motivation and a classroom environment where students complied without genuine intent due to negligent rules and a lack of engaging activities. The teacher indicated that the next class would focus on character roles and a lecture on the drama's meaning, which could potentially improve the learning experience. Similarly, each subject class is guided by the test styles. The teacher (IT₇) says, "these are the questions usually asked in the examinations," and the students are supposed to write the answers based on the questions discussed in the classroom: Creating real-world situations, exercising on problem solving, and practicing deep thinking in the classrooms are rare and the students do not get ample opportunity to be involved in creative skills. On the one hand, in the institutional schools (IT₅), the students are provided with structured questions along with their written answers to learn them by heart, and on the other, the students of community Schools are taught, taught, and taught with the explanations of the textbook material without involving the students in practicing creative skills (CT₂).

The teacher (IT₇) carefully prepared class notes and an annual plan with three clear objectives. The learning situation was beneficial, with activities related to the lesson. He led a discussion using pictures from the book, effectively engaging students, who responded well to his questions. A summary of four key points was provided, and although he used a headset microphone, no ICT tools were incorporated. He allowed five minutes for reading before a class test. The positive learning environment enabled students to choose their benches freely, ensuring equal opportunities for all. The lessons were relevant to their daily lives, promoting discipline and a positive attitude among students, which fostered their overall growth. The above-discussed information indicates that the differences in educational achievement between schools, students, subjects, districts, and provinces are caused by geographical variation, economic disparities, resource availability, socioeconomic backgrounds of parents, proactiveness of school leaders, quality teaching, parental education, occupation, and their involvement in their children's learning, minimum school infrastructures, learning resources, and regular formative assessment, and remedial treatment. Educational achievement, thus, in Nepal varies widely across districts, provinces, and schools due to unequal geographical and socio-economic conditions. Students from low-income families face challenges like limited access to resources, distant schools, and a lack of tutoring or parental support. Poor teacher management, especially in rural areas, and the absence of remedial instruction further widen the learning gaps. Traditional teaching methods dominate classrooms, restricting student engagement and critical thinking. These disparities stem from systemic issues such as weak decentralization, infrastructural deficits, and inequitable learning environments that affect student outcomes.

Factors Causing Achievement Differences across Schools

On the basis of the type of school, there are two categories: community and institutional schools. The community Schools are supported by the Nepal government, and

they are government-funded. Up to grade X, students do not have to pay their tuition fees, and the teachers' expenses are borne by the government. In contrast, the institutional schools have been running with the investment of the founders, and the students have to pay the admission, monthly tuition, and other fees heavily (IP₁). Mostly, these schools have been running in the urban areas, and the students from somewhat economically better and educated families get admission there, and their parents are fully involved in their studies, not only in their homes but also at schools (CH₁). They maintain good communication with both teachers and those involved in various activities. School administration is held in schools, like teachers' meetings, receiving results of various tests and examinations, and sometimes being involved in classroom management committees, like in Secondary School A of Solukhumbu (IP₁). One of the principals in Solukhumbu claims that in the institutional schools, the teacher is regular, punctual, and accountable for the work because there is a provision for hiring and firing them (CH₁). Because of the private investment as well as the parents' contribution to bearing the expenses, there is very little political dominance and unionism (Parents FGD, IS₅). The administration is always watchful of student monitoring and absenteeism (IP₃). Though they are not as highly qualified as the teachers in the community schools, they can produce higher achievement in students' learning.

The Community schools have been suffering from lower student learning achievement. One of the chairpersons of the School Management Committee (CH₂) claims that the parents of the students studying in the community school have very little involvement in their children's studies. On the one hand, they are a bit far from the schools and have been engaged in agriculture, work, field work as the laborers or have gone for foreign employment, and their mothers are busy with home chores and mostly have less academic qualification; their children's learning achievement as well is often lower than the others (CH₇). In schools as well, teachers are less accountable (FGD, P₁). There is undue political dominance, and the teachers do not maintain a daily diary for the record of their students. Because of the close alignment with different politically dominated thought groups of teachers (SMC, CM₁), there is always hidden conflict among teachers, and there seems to be very weak collaboration and teamwork among teachers in community schools. The monitoring and supervision aspects of the local line agencies are also very weak nowadays in the district and municipality areas (ESCU₆).

This indicates that learning achievement of different schools varies because of the location of the school, available resources-both human and physical- in the schools, parents' conditions, collaboration and teamwork in schools, local political influences, and leadership initiation. Achievement differences across schools, thus, in Nepal are primarily shaped by school type, socioeconomic status, and administrative practices. Institutional schools, often located in urban areas, benefit from strong parental involvement, private investment, and stricter teacher accountability, resulting in improved student performance. In contrast, community schools face challenges such as low parental engagement, political interference, limited supervision, and weaker collaboration among teachers.

Data-Driven Approaches to Assess and Address Learning Disparities between Different Groups

The NASA reports from the very beginning of ERO up to now show that students are struggling to acquire even a minimum learning achievement. The majority of the students (over 50%) have achieved lower than 50% of the curriculum in all subjects (ERO, 2020). Every NASA report has argued that there are problems in teaching learning strategies, the teacher's role in remedial efforts, collaboration among teachers of all subjects, minimum school infrastructure in the rural areas, parental involvement, and insufficient resource allocation of both human and economic resources. For the analyses of the failure and success, the data-driven approaches to explore influencing variables include these achievements of students, their age, home-language, school type, their aspirations, parental education and occupation, family size, teachers' regularity, interest in subjects, homework, and feedback, along with the home possessing and accessories, bullying, and injustice behaviors of stakeholder.

The local education agency personnel have claimed that the local plans prioritize equitable access and quality (LA₁ & LA₃) education through policy implementation, teacher training and support programs, supervision, monitoring, and following up, involving parents with appropriate orientation, supporting schools to develop infrastructure, and designing and referring curriculum and teaching strategies. Thus, local levels of education agencies can create plans to allocate resources and support schools through teaching, training, curriculum development, and community involvement to address achievement gaps.

The information discussed above indicates that the data-driven approaches to assess and address learning disparities between different groups include the empirical data on teacher's roles in remedial efforts, collaboration among teachers, inadequate school infrastructure in rural areas, parental involvement, and limited resource allocation, age of students, home language, school type, aspirations, parental education and occupation, family size, teacher regularity, subject interest, homework feedback, and experiences related to bullying and injustice. Key factors contributing to achievement disparities include teacher effectiveness, infrastructure limitations in rural areas, and minimal parental involvement. Data-driven approaches identify influences such as school type, home language, family background, and feedback practices that affect student success. Local education agencies are focusing on inclusive policies, teacher support, and community engagement to address these inequities and improve learning outcomes.

Reasons for Lower Student Learning Achievement due to Lower Economic and Social Background

A community has both low-economic and social background people and high economic and social background people. In Nepal, almost all of the high economic and social background people educate their children in well-funded schools of urban area but the low-economic and social background people, who are mostly living in the distant villages from the urban area, do not have access to educate their children in such schools. So, the underfunded schools with limited resources are for the low-income and socially disadvantaged children (FGD, CT₇). That's why the children who have been admitted to these

schools usually have lower learning achievement. Based on socio-economic factors as well as their academic position, they remain far behind and cannot be involved in their children's educational process, except for their wish for their children's learning achievement (FGD, CT₁). Their children's health and nutritional issues are also genuine, and from the very beginning of their childhood, they are in dire need of quality educational materials. Therefore, their learning achievement is also badly influenced. This can also be seen in different sampled districts and schools.

It indicates that the reasons for lower student learning achievement due to lower economic and social background are a lack of sufficient learning resources, less parental involvement in their learning, lack of positive and supportive reinforcement in their weak admission in under-resourced schools. Because of the long distance from home to school and from school to home, students have to suffer from fatigue in students. They also have to engage themselves in home chores after school time. Students from lower economic and social backgrounds in Nepal face multiple barriers to academic success. These children typically attend underfunded schools in remote areas, which lack adequate resources, qualified teachers, and quality learning materials. Their families, often limited by financial hardship and low educational attainment, are less able to support their children's learning journey, despite their desire for better outcomes.

Impact of Caste / Ethnicity and Home Learning Achievement

Language is regarded as the vehicle of culture of different casts and ethnicities and a means of communication. To have effective communications, there must be understanding and comprehension on the part of both senders and receivers of the message delivered. The students whose language is different from the language of classroom instruction may not understand and comprehend the message delivered well, which leads to poorer academic performance (LA₂).

In Nepal, many castes and ethnic groups speak their own mother tongues and have their own distinct cultures. Many of these castes and ethnic groups may have a lower economic and social background. Because of them, they may be suffering economic disparities. They may lead to limited access to quality education and other resources. Furthermore, the educational materials may not reflect diverse cultural backgrounds, which can lead students to feel less ownership, lose interest in learning, and leave school earlier. On the other hand, students remain frequently absent from school. These all circumstances cause poor performance in their academic Journey (LA₁& LA₂).

In many other places, there are some marginalized and disadvantaged communities like Dalits as well. They have limited access to quality education because of the undersourced community, the parents' education, and their occupation might also be blue-collar jobs (LA₆). Since they live in remote villages and have little awareness of the importance of parents' involvement in attending schools, their children's learning achievement is affected relatively. So, they have lower learning achievement. When speaking with teachers and their parents, it was clear that this circumstance exists across the sampled districts and schools, both institutional and community types.

As the summing up of the information on the impact of caste/ethnicity and home learning achievement lies in less comprehension of the contents delivered, in an under-resourced community, the long distance between school and home, frequent absence from schools, and a feeling of lack of ownership of the schools. Students from different castes and ethnic groups in Nepal often face language barriers in classrooms, which lead to reduced comprehension and lower academic performance. Economic disparities and cultural underrepresentation in educational materials further diminish their engagement and sense of ownership in schooling. Limited parental awareness, remote living conditions, and resource-constrained communities contribute to frequent absenteeism and hinder their learning outcomes.

Differences in Achievement between Boys and Girls

Teachers have also felt differences in learning achievement in different student groups (Boys and girls, urban and rural students of community Schools and institutional schools, children from high economic and social backgrounds and from low economic and social backgrounds, children from educated parents and non-educated parents). In the early years, the boys and girls of community schools do not have any significant differences in their learning achievement, but with the gradual growth of the age of girls, their responsibilities in families as well as in society grow and affect their learning achievement, and they get a bit behind the counterpart boys (FGD, CT). They also feel insecure on the way to distant schools, and their menstruation problem also affects their learning achievement in some traditional cultures of the remote areas.

The students from lower economic and social background as well as the students from lower academic position have been suffering from taking education from the under resourced schools, less parental involvement in their studies, limited learning resources, walking a long distance to go to schools and working after school time at their homes and in some cases in other's homes as well (FGD, CT₃). So, they have lower learning achievement. They also cannot expect learning support at home, setting high expectations and financial stability, and sometimes they have to suffer less motivation, no encouragement and praise from their parents, and support if they have any weaknesses. They usually have problems connecting the lessons they do in the schools to their real-life experiences, and they cannot develop consistent study routines. This is how their learning achievement has been affected badly.

However, in the cases of institutional schools, the students can have their chances of education in the urban areas of highly-resourced schools managed by the private sector. Such institutional schools have well-equipped classrooms, libraries, laboratories, devoted teachers,

teamwork because of the less influence of local politics, smaller and manageable class sizes, and a strong hold in discipline (FGD, IT₆). The most important one is the parental involvement in their children's learning, either helping them with their homework or admitting them to the tuition classes or coaching classes managed by their own schools. So, their learning achievement, by nature, is better than that of the students of some remote community schools. Teachers in the field are of the opinion that the students of rural community schools suffer from limited access to learning resources, social discouragement, school environment and support, regular mentoring and supervision, along with weak family and community support.

It indicates that differences in achievement between boys and girls are observed due to the gradual growth of girls' age, as well as their responsibilities in families and society (Parents, FGD). Gender-based differences in learning achievement tend to emerge over time in the community schools of Nepal, particularly as girls face increasing household responsibilities and societal challenges. Insecure travel routes, menstruation-related issues, and traditional norms further hinder girls' ability to participate fully in education. Students in well-resourced institutional schools benefit from parental involvement and quality infrastructure, resulting in higher learning achievement compared to their counterparts in rural, under-resourced community schools.

Reasons behind Similar Types of Results of Different National Assessments of Student Achievement

From its inception, ERO has been taking NASA almost every year, but the results have been almost the same. There may be various reasons, such as ineffective educational policies taken by the Ministry of Education, Science and Technology. It has taken decisions to provide a midday meal, but the budget for every child has been allocated only Rs 15. Is this sufficient to buy the foodstuffs for the child

Similarly, scholarships are provided for the girls, Dalits, as well as others, and given only three hundred rupees for every scholarship receiver. It looks like a populist means of a Ministry like a party's slogan. Some questions arise: how can a student manage his/her studies with this money? Is this money sufficient for the local level educational personnel to have a meal in his/her visit to a school? What's the vision of the Ministry about scholarship provision? Similarly, the schools are expected to run some remedial classes after analyzing the test results. How can a school manage these classes without allocating a budget and not being allowed to raise any fees in the community schools? And how can the School involve the parents, as in the parents' involvement in the institutional schools, in such a situation? In many cases, some of the students' parents who receive scholarships take the money to buy food for the other members of the family as well.

The teacher trainings are also of the nominal ones because they are prescriptive, non-contextual, top-down, and solely theoretical in nature (CTI₁). Every teacher has different needs. Without collecting their needs through their classroom observation, hearing their grumbles, analyzing the portfolio of their yearly activities, taking their interviews and discussion for determining the contents and processes for the training, this type of training cannot produce the knowledge and skills that can be transferable in the classroom delivery

practically (CTI₆). Such trainings are inadequate for every teacher. In a school, there are different types of teachers on the basis of their nature of appointments, but the work is not different (CTI₄ & CTI₇). Only the permanent teachers can avail the chances of taking training.

In Nepal, the teaching profession is not taken as a very prestigious job for intelligent students. So, the weaker students enter this profession with less motivation. If they get a chance to jump into another profession, they won't hesitate to take an appointment at an officer's level with their master's degree qualification and working at the higher secondary level temporarily (CTI₁).

Almost all schools in the rural areas do not have teaching and learning resources of both human and physical in nature. So, the teachers use traditional, outdated methods of teaching, like lecturing, even in the lower grades. The education system of Nepal has also followed liberal student promotion policies, because of which the weaker students get promoted every year. The continuous Assessment system has been ineffective because almost all of the teachers are in a hurry to fill out the forms with tick marks just before the result of the final evaluation of the grade (HTI₆). The whole curriculum, as well as the assessment processes, emphasizes theoretical knowledge. The most serious problem lies in the monitoring, supervision, and follow-up by the educational line agencies.

In the field, it could be seen that almost all EDCUs and education sections of municipalities have been led by personnel at an officer level, but there are head teachers and teachers of the first class or second class in their positions. Instead, the educational personnel are busy in their administrative roles rather than supervision, monitoring, and mentoring (EDCU₃).

Furthermore, the results of NASA are not supplied to the municipalities or the schools, and how can they know what results have been seen in the tests of NASA? On the one hand the participants of the NASA are not informed about the results, and can the other even the local education agencies are not informed them (HTI₆). Therefore, the situation has not changed so far.

The above information shows that the reasons behind similar types of results of different national assessments of student achievement, caused by the consistently poor results of national assessments in student achievement, can be linked to educational policies and insufficient funding for programs like midday meals and scholarships. Teacher training is also lacking, as it doesn't meet the diverse needs of teachers, leading to outdated teaching methods. Moreover, local education agencies are not informed about assessment results, which hampers efforts to improve the situation. The consistently similar type of student achievement outcomes in national assessments like NASA can be attributed to several systemic issues. These include inadequate education policies, insufficient funding for programs like midday meals and scholarships, ineffective and unresponsive teacher training, and a lack of accountability mechanisms such as monitoring, mentoring, and dissemination of results. Additionally, limited community engagement and outdated pedagogical practices in under-resourced schools perpetuate low learning outcomes year after year.

School-Based Strategies and Practices

1. Contribution of Teaching Method Adapted in The School to Students Solving Application-Level and Higher-Order Thinking Questions
2. Integration of Technology to Enhance Student Learning Achievement
3. Teaching Methods to Address Gender Disparities in Learning Achievement
4. Differentiated Instruction Techniques to Help Students Address Diverse Learning Abilities
5. Measures Adapted to Improve the Achievement Level
6. Strategies Effective in Engaging Students with Lower Academic Performance
7. Challenges and Successes in Improving Student Learning Achievement

Contribution of Teaching Method Adopted in the School to Students Solving Application-Level and Higher-Order Thinking Questions

Teaching delivery processes in Nepalese classrooms remain teacher-centered, with teachers serving as transformers, controllers, informants, and decision-makers, but not as facilitators, encouragers, involvers, or innovators. On the one hand, students' learning habits have weakened due to a lenient grading system and overuse of social media (FGD, T1, and T6); on the other hand, teachers remain traditional in their teaching delivery. Many teachers rely on textbooks as their mainstay; they have not seen the curriculum and use the curriculum and teachers' guides in classroom instruction (EDCU4).

The Application level and higher-order thinking require Students' intrinsic motivation and in-depth engagement in the study, facilitated by the teachers through differentiated teaching delivery, involving them in the exercises on critical thinking and problem solving, which leads them to an in-depth understanding and long-term retention. Students in the classroom must be activated through collaboration in group work and team-building activities. They are not only being mugged for power from the larger vessel of jugs, but also for information and knowledge to be filled into their minds. But through classroom observations of the teachers, it can be seen that they are only preparing their students to get pass marks or secure high scores in the examination. That's why they frequently talked about the questions that are asked in the examinations and their answer in every class. In this context, the class preparation was inadequate, focusing on drama in the Nepali subject. The teacher mostly had students read during the period, lacking effective strategies like summarization and feedback, which diminished engagement. Motivation was superficial, with minimal interaction or discussion on the material. The classroom environment was not conducive to learning, as students complied with instructions without real intent. Students were not allowed to choose their seats freely, and there were no engaging activities to enhance understanding. The teacher indicated that the next class would cover character roles and provide a lecture on the drama's meaning and message (IT4).

The explanation of the above message lies in the contribution of teaching methods adopted in the school to students solving application-level and higher-order thinking

questions, which require differentiated learning, exercises on critical thinking and problem solving, activation of students' initiatives in collaboration among students in pairs, groups, group as well as teamwork, but these were rarely found applied in the field. Nepalese classrooms remain dominated by traditional, teacher-centered methods that hinder student engagement and critical thinking. Limited use of curriculum resources and lack of effective teaching strategies result in superficial learning focused mainly on exam scores.

Integration of Technology to Enhance Student Learning Achievement

This age has become the era of digital technology. In every sphere of human life, this has become a must nowadays. Without it, people feel like a fish without water. Therefore, devoid of it, no institution, not only the educational institutions, can be thought of as an exception to it. In School, technology has been used as a device for visual, audio-lingual, and more dynamic presentations. One of the principals said "We use technology since our School has enough computers. The Internet is good. A projector can be used in the classroom. Various videos and other topics can be shown in the classroom through the projector. The result of their School is better than others because their teachers were found competent due to their planning and management. The result of these schools for better performance is the facilities provided to teachers. They also visit other public schools which are better in terms of physical infrastructure, like library, laboratory, school building, but they are not properly used, he claimed that 'If we had such a facility, we could have given much better quality'.

Thus, computer technology has helped learners with personalized learning and enhanced collaboration in the learning process. It has helped create virtual reality, online resources, and the use of digital libraries. However, when we observe classroom teaching delivery. The teachers in both institutional and Community Schools do not use it, though in a Community School of Dudhkund Solu. Every teacher in the community school (CO1) has been provided with a laptop, and there are some smart boards in the school; however, these technological devices have not been observed to be used in the teaching and learning process. In sum, the integration of technology to enhance student learning outcomes can support the pictorial presentation and the use of the internet for searching and sharing learning resources via digital devices. But they have not been properly utilized in the field. Despite the growing availability of digital tools in schools, technology remains largely underutilized in classroom teaching across Nepal. Although it has the potential to enrich learning experiences through personalization, collaboration, and multimedia content, many teachers have yet to integrate it meaningfully. To improve student outcomes, schools must prioritize the effective use of technology in both infrastructure and pedagogy.

Teaching Methods to Address Gender Disparities in Learning Achievement

In the earlier grades, there is not so much difference between boys and girls, but with their growth in age, girls are found to fall behind their male counterparts. In such situations, they require active promotion of their involvement in academic activities; they feel somewhat secure when there are female role models for their mentorship and guidance (FGD, CT₁). They also need strong family support. The School must have policies to promote them with encouragement and scholarships (FGD, CT₅). If the girls from different ethnic groups and castes fall behind, they are offered girls-specific skill training through discussions with

teachers, parents, and students. Such programs have been started in their schools. Focus group discussion of (CT₆) claims that girls are gentle and eager to learn in the classroom. They have performed better in the test than boys in recent days.

Regarding the teaching methods to address gender disparities in learning achievement, it indicates that in the early grades, boys and girls perform similarly, but as they grow older, girls often fall behind. To help them succeed, it is important to encourage their involvement in school and provide female role models for support. Schools can promote girls' success through scholarships and specialized training programs, and many girls are eager to learn and are even outperforming boys in recent tests. Promoting gender equity in learning requires intentional support and encouragement for girls as they progress through school. With the right role models, family involvement, and targeted school programs, girls can thrive academically and even surpass their male peers.

Differentiated Instruction Techniques to Help Students Address Diverse Learning Abilities

By implementing differentiated instructional techniques, teachers spend less time organizing content, solving problems, forming groups, and collaborating among students, thereby enabling students to stand by their sides, construct diagrams, and summarize discussions. They encourage students to engage in discovery work, which moves them beyond their current knowledge and skills to new ones without being overly easy or overly difficult. Because of the task-based, group-based, collaborative learning, students with diverse learning abilities are highly motivated, developing a sense of ownership of their learning. Teachers' roles only remain as the models, facilitators, and encouragers.

Through classroom observations of the teachers of Nepali, science, English, and mathematics, the differentiated learning mode could not be found in the real sense. They are still involved only in lecturing and explaining the textbook materials, the pictures and diagrams provided in the textbooks, holding them just above their heads and pointing with their forefingers (CO₄ & CO₂). The students of the institutional schools exposed that the main and important content from the examination point of view are given in note form to be learnt them by heart, though some teachers are aware of the learner-centered teaching methods in Which teachers give more time, energy and creativity being devoted to finding and using effective mechanism for constructive classroom delivery and appropriate feedback, this can be seen only in theory but not in practices in Nepali context (CO₁ & CO₇). On asking why, this is so, the teachers claim that the time constraints, complexity of the courses, and multilingual context, school cultures, as well as the available resources, are the hurdles for it.

The above information shows that the teachers are encouraged to use differentiated instruction to meet the diverse learning needs of their students. However, many teachers in Nepal still trust deeply in lectures and textbook explanations, rather than engaging students in hands-on activities. This approach often stems from challenges like time constraints and the complexities of the curriculum, which limit their ability to implement more interactive and student-centered teaching methods. Differentiated instruction offers a promising approach to meet the diverse learning needs of students through collaboration, discovery, and

personalized support. Yet, most classrooms in Nepal continue to rely heavily on traditional lecture-based methods, limiting student engagement and ownership of learning.

Measures Adapted to Improve the Achievement Level

The Education Development and Coordinating Unit is one of the key agencies for enhancing the learning achievement of students. It (EDCU) plays a vital role in improving the educational level in the district through regular monitoring and supervision of schools and suggesting for improving level of learning achievement of students. It collaborates with the school management committee and the parents of the students. It has also conducted training on ICT use programs for the teachers and students (LA₁). It conducts interactions with the head teachers, capacity development programs for the local level authorities, and programs for integrated educational information management in the district. However, because of the geographical barriers, not all schools can be supervised frequently, and the parents cannot take part in the organized programs at the district headquarters (EDCU₇). Similarly, the EDCU has coordinated with curriculum implementation, strengthening teacher training, allocation of resources, curriculum reform, and improvement in assessment styles.

It indicates that the measures adapted to improve the achievement level of students, the Education Development and Co-ordinating Unit (EDCU) works in the district by monitoring schools and training teachers on ICT. They collaborate with school management and parents, but some schools face geographical barriers that limit program supervision and participation. EDCU also focuses on enhancing the curriculum, teacher training, and resource allocation for better assessments. The EDCU plays a crucial role in improving student achievement through school monitoring, teacher training, and collaborative initiatives. Despite its efforts, geographical challenges limit full participation and supervision in some areas. Continued focus on curriculum enhancement and resource allocation can help overcome these gaps and support long-term educational progress.

Strategies Effective in Engaging Students with Lower Academic Performance

The students with lower academic performance usually are not so intrinsically motivated because of their less comprehension of the subject matter (FGD, CST₂ & CST₅). They need clear instructions, as far as Possible, using trans-language and immediate constructive feedback (FGD, CSS₄). If there are interactive teaching methods involving students in Collaborative work in groups, they come out of the box of their hesitation. They need some incentives and rewards for even their small success and encouragement even in their weaknesses (FGD, CST₃). The teachers have to celebrate their success. The teachers can use diverse strategies for differentiated learning through storytelling, involving the student in project work, and outside play activities- they can be a model of connecting lessons with their real life-situations (EDCU₂ & EDCU₅). As far as possible, the teachers have to follow the 80-20 principle, allocating 80% time for the students and only 20% class time for him/her. The more knowledgeable peers can also help and encourage those with lower academic performance. Some instructional strategies, like student-centered teaching methods, creation of real-world context by using various audio-visual materials, using appropriate assessment styles, giving only inevitable and suitable assignments, and providing sufficient opportunities

for problem-solving exercises and creative work at home and in schools (CMCM₁) produce higher learning achievement in students.

Peer and group learning can also play significant roles in enhancing the academic performance of low-achieving students. In a group, they have opportunities to interact with their colleagues, contribute to discussions in their home language, take notes, and present their work to their peers and teachers. In the course of time, they gradually become accustomed to routine work and improve their academic performance (IP₁ & IP₃).

Thus, strategies effective in engaging students with lower academic performance are involving students in collaborative work, differentiated learning for both teachers and students, and peer support. Supporting students with lower academic performance requires clear instructions, interactive group activities, and emotionally affirming practices like rewards and encouragement. Differentiated instruction and peer collaboration help build confidence and foster gradual academic growth. Connecting lessons to real-life situations and creating inclusive learning environments empowers all students to succeed.

Challenges and Successes in Improving Student Learning Achievement

There are several challenges in improving student learning achievement, especially in rural community schools. These challenges include ensuring equal access to quality education for all (EDCU₁ & EDCU₇), parents' academic qualification and socio-economic status, parents' involvement in their learning process, political undue influence (EDCU₇), and students' reluctance in learning. Location of School and unawareness of the parent towards their children's study, socio-cultural barriers of the remote communities are some of the challenges in remote community schools. Similarly, equal distribution of human as well as physical resources poses some challenges for the community people. Student-centered teaching is an essential method, but it is not easy in a community school. It is difficult to implement as the number of students is high and the human resource is low (CHT₄). This information reveals the fact that the challenges and successes in improving student learning achievement are parents' involvement, remedial treatment, local political influence, misuse of digital devices, teaching quality, and equal access to resources.

Improving student learning achievement, thus, in Nepal's community schools faces challenges such as unequal access to resources, low parental involvement, and political interference. High student-teacher ratios and socio-cultural barriers further complicate the implementation of student-centered teaching methods. Despite these difficulties, targeted strategies like remedial support, better teaching practices, and inclusive policies can gradually enhance academic outcomes.

Role of Institutions and Education Agencies

1. Local Level Education Agencies' Roles in Making Learning Achievement
2. Measures of Reducing the Gap Adopted by the Local Education Agency
3. Head Teachers' Role as an Education Leader

4. Reasons for High Student Learning Achievement in Institutional Schools

Local Level Education Agencies' Roles in Making Learning Achievement

The Constitution of Nepal (2015) has given local levels the authority to oversee the implementation of education policies and programs designed for local use. They have to help design and refine not only the teaching and learning materials, but also the funding learning strategies along with the activities within the municipality to suit the national goals. They have to organize teacher professional development programs to refresh and update the current situation of methods of teaching in homes and abroad (LA1 & LA7). Their other main role is to monitor and supervise the school, as well as the students' performances (LA2 & LA3).

NASA results have shown different achievement levels according to geographical location and school type. The situation is the same in this municipality as well (LA4). There is no regularity of students in the school. There is a lack of resources. Access to technology is poor. Therefore, the results are varied. "We are active so that there is no big gap in achievement in this municipality; manpower mobilization, awareness, and resources are managed. He further added, "We are committed to improving the weaknesses, adding service facilities to the school, making use of technology, raising awareness among parents, etc. They have a plan prepared to create awareness and generate income-generating opportunities for parents living in poor economic and social conditions. In their view, law alone cannot change society; its implementation becomes a major issue that is challenging to work with.

Since they are the coordinating units of the local levels, they have to engage the community, collaborating with parents, teachers, and administrators to create a conducive learning and teaching environment (LA2). Every School in the municipality must have a minimum standard school infrastructure. Their effective management lies in the form of local agencies and ensures every school has adequate facilities and resources to support a learning environment (LA3). They have to work on policies and practices to promote access and inclusion for students with diverse learning needs.

On asking whether they can make a difference in the student learning achievement, the authority of the municipality (LA1 & LA5), though there were not the personnel of officer level, realized that the local level can do it by managing resources, supporting teachers, engaging Parents, guardians as well as the community in the school activities through orientations and support and running different programs to enhance the engagement of participation of them.

It means that the local level education agencies' roles in enhancing learning achievement are organization of teacher training, monitoring and supervision, equal resources allocation, enhancing access to technology, awareness raising programs to parents, community engagement in students' learning, as well as implementation of designed policies at the local level, and they are doing their best to achieve them. Local-level education agencies in Nepal play a vital role in improving student learning by implementing policies, supporting teacher development, and monitoring school performance. They work to address challenges such as poor infrastructure, limited technology access, and socio-economic barriers through resource management and community engagement. Despite limitations, they are actively committed to raising awareness and fostering inclusive educational environments across municipalities.

Measures of Reducing the Gap Adopted by the Local Education Agency

On asking what measures they have adopted to reduce the difference in institutional and community schools, urban and rural ones, girls and boys, Nepali native speakers and non- Nepali native speakers along with socio-economic status of their parents, the authority of local level of education has claimed the nation has provided free and compulsory education for basic level and free education up to secondary level in the community schools, the students of backward areas, mid-day meal and support for the marginalized groups of Dalit (LA₆), indigenous and differently able students. There is also a provision for mother-tongue-based instruction, which promotes instruction in the local language (LA₃). Higher student learning outcomes require effective, professionally developed human resources. The local education agency also emphasizes teacher training and teacher professional development programs, enhancing their quality in both rural and urban areas (LA₅). Through a decentralization scheme, the local education agency empowers the teachers and community.

The information discussed above indicates that the measures of reducing the gap adopted by the local education agency include managing mid-day meal for the students up to grade five, support to the marginalized, Dalit, as well as differently able students, and the implementation of mother tongue-based instructions in their municipality area. Local education agencies in Nepal are working to reduce disparities through free and compulsory education, targeted support for marginalized groups, and mother tongue-based instruction. They also prioritize teacher professional development to improve teaching quality across rural and urban schools. Empowering communities through decentralized decision-making is helping create a more inclusive and equitable learning environment.

Head Teachers' Role as an Education Leader

The head teacher in a school is regarded as the pivot of the educational institution. He/she has to lead to set the mission, vision, and realistic goals of the school and create a favorable teaching and learning environment in collaboration with all capable teaching and non-teaching staff. He/she is responsible for managing all personal, physical, and financial resources of the school and expanding the school, community, and local government networks. His/her responsibility also includes developing and using innovative instructional strategies focusing on higher student learning achievement. It cannot be achieved so easily unless developing teamwork and building consensus and skills in negotiation and resolution, along with encouraging teacher professional development (HTI₁). He/she also has to create a culture of collective accountability, being a model of transparency.

While talking to the personnel of the (EDCU₁), it was noticed that in those community schools where the head teachers are strong, active, determined, and visionary, the situation is different, but in those community schools where the leadership is weaker, the school environment is somewhat different. They cannot coordinate well in the schools.

Now-a-days the teachers have been aligned with their own thought groups of the teachers' organizations. Teachers in a school have different interests and thoughts, they do not believe each other, there is a hidden clash in them, and even in small matter they cannot

compromise on the issues of teaching and learning (EDCU₇). They themselves feel seniors and juniors, which has also been instigated by the local political parties.

This information clearly shows that the head teacher's role as the educational leader can play an important role in leading the school by establishing its mission and goals, and creating a positive learning environment with the help of staff. Strong and visionary head teachers can make a significant difference in school coordination and overall success, while weaker leaders struggle to unite their teams. Additionally, teachers often find themselves divided by personal interests and external influences, making collaboration and compromise difficult.

Roles of a head teacher as an educational leader

- Establishing the school's mission, vision, and realistic objectives for improvement;
- Collaborating with teaching and non-teaching staff to foster an engaging and supportive atmosphere;
- Overseeing personal, physical, and financial assets and building networks with the community and local government;
- Enhancing the use of innovative teaching strategies aimed at improving student learning outcomes;
- Promoting teamwork and teacher development through encouraging collective responsibility, professional growth, and resolving conflicts among staff;
- Leading by example in ethical conduct, decision-making, and clear communication

Reasons for High Student-learning Achievement in Institutional Schools

The national assessment of student achievement (2020) has indicated that a large number of students are at below-grade level, and an alarming gap exists between the intended and achieved curriculum. On asking if there were any planning to raise the learning achievement, one of the institutional schools (IS₁) mentioned that though they are doing better in the district in comparison to other institutional as well as community schools, they are planning to establish good relationship with parents and guardians through level wise and department coordinators, forming classroom management committees consisting of both teachers and parents, organizing frequent class wise parents' meetings, taking class ten students to visit other model schools and other offices of the district. Every student in the higher grades is involved in the project work, and teachers use student-centered classroom strategies. The model community school (C₁) of the district is suffering from the parents' less involvement in their children's studies. The students of this School are from a long distance from the villages. Mostly they are either the children of farmers, laborers, or the parents who work have gone to foreign jobs. Most of these children's mothers are illiterate and busy farming. They do not have any time or awareness of caring for their children. Therefore, they do not participate in school activities, including occasional meetings organized by the School. In such a situation, the school management committee has a plan to manage some rewards for the students' competitive programs and provide them through the hands of their own parents. They also have plans to take tests for reading and writing, but there are some challenges,

including family background, teacher dependency in students, lack of initiative to search for materials on the part of teachers, and insufficient resources. In the cases of community schools (CS₂) which have Lower student learning achievement, there is very less initiative to collaborate with parents to enhance student learning beyond their classrooms by regular communication with the parents, home learning support, parents' meetings orientation for them, involving them in schools' program, and initiating them in School's programs and initiating to find some helping hands and partnership with the community for the needy students.

This indicates that the learning achievement of students in institutional schools is better than that of students in community schools because institutional schools are located in urban areas; they have in-depth parental involvement in their children's learning, teachers are regular and accountable in the delivery process, as well as homework checking and feedback giving, strict discipline, and determined school leadership. Institutional schools tend to achieve better student learning outcomes due to strong parental involvement, disciplined environments, and proactive teaching strategies. They emphasize collaboration through committees, regular meetings, and student-centered approaches. In contrast, community schools face challenges such as limited parental support, resource shortages, and low teacher initiative, particularly in remote areas.

Student Experience and Motivation

1. Student's Responses to Homework and Feedback
2. Teachers' Feedback and Encouragement to Influence Student Learning Achievement
3. Challenges Teachers Face in Providing Personal Feedback to Students
4. Experiences of Bullying and Its Impact on Student Learning Achievement
5. Impact of Extracurricular Activities on Academic Performance and Motivation
6. Difficulties Students Have to Face While Preparing for Exams

Students' Responses to Homework and Feedback

Homework is one of the means of improving students' learning retention for a longer time. That's why it is given by the teachers' day or on some days. The NASA report has shown different results on homework giving, checking it, and giving feedback from teachers. In some reports, the regular homework giving, checking, and giving feedback have a positive effect on student learning outcomes, but in some reports, if the work is given on some days and giving feedback on them has positive effects in learning, but if the homework is given and there is no feedback, it does not have any effects on their learning. Similarly, if homework is not given, not checked, and not given any feedback, there is a negative effect on student learning. Giving homework is good. It teaches diligence at home and improves academic performance (FGD, CP₄), but students in an institutional school (FGD, ISP₄) claim that even the tick mark (✓) does not indicate the right answer checked by the teacher.

On asking how students respond to homework and feedback, and whether it helps to improve their learning achievement. The teachers as well as the students respond that

every day's homework without rigorous checking for the feedback hampers the students' learning because sometimes seeing the right symbol in their homework books, they learn some erroneous matters, and they are always under stress for completing the given homework and also, they do not have any spare time for rest.

It shows that the student's responses to homework and feedback are both positive and negative ones. If they receive appropriate critical feedback instantly, the homework has a positive impact on them, homework creates stress on them. Homework can support long-term learning and diligence, but its effectiveness depends on timely and constructive feedback from teachers. Without proper checking, students may internalize errors and experience unnecessary stress. Meaningful feedback turns homework into a tool for academic growth, while unchecked tasks risk becoming burdensome.

Teachers' Feedback and Encouragement to Influence Student Learning Achievement

Teachers engage their students in the classroom by involving them in the learning activities. While observing classroom teaching of both institutional schools and community schools. Teachers were found to spend most of the time explaining the textbook materials and asking some short confirmation questions (CO₁). In the science classroom, the teacher gave a simple problem of putting a formula, but his attention was fixed only on the good students. Their feedback could also be seen on the targeted examination, not for improving the skills to be applied in their practical life (CO₂ & CO₃). While observing the classes of Nepali and science subjects of grade eight and grade ten, the feedback given after checking their homework was not seen (CO₅ & CO₄). But the students and the teachers both accepted that they give and receive feedback sometimes in groups, but not individually.

Regarding the theme, teachers' feedback and encouragement to influence student learning achievement, it shows that the teachers try to engage students during lessons by using textbook materials and asking confirmation questions. However, they often focus more on the better-performing students and overlook giving useful feedback for real-life skills. Both students and teachers agree that feedback is sometimes shared in group settings, but individual feedback is rare. Teachers often rely on textbook-based explanations and brief confirmation questions to engage students, focusing mainly on high achievers. Feedback is usually exam-oriented and rarely promotes practical skill development. While some group feedback occurs, personalized support for individual students is largely absent.

Challenges Teachers Face in Providing Personal Feedback to Students

There are several challenges in providing personal feedback to the students. The teachers are overloaded with teaching because they have to teach 6 to 7 periods a day on the one hand, on the other, the number of students is greater than fifty in a class (CST₁ & CST₅). If the teachers try to provide individual feedback, they need more time and energy to check the daily homework or classwork. So, it requires complex interconnected skills and patience. It is time-consuming, and teachers must be able to tolerate the messiness that may happen in the classroom while implementing learner-centered teaching strategies (IT₆). The teachers are also not sure whether they are able to complete the course in time or not if they employ their time for individual feedback (FGD, IT₄). In the field, while talking to the students and

teachers of both community and institutional schools, the teaching load of the community school was found to be four to five periods a day, but it was six to seven periods in the institutional schools. The teachers in the institutional School were found to be more accountable for their work than the teachers in the community schools.

Thus, the challenges teachers face in providing personal feedback to students are overcrowded classes, overloaded routine, inadequate resources, limited time, the burden of course completion in time, and students' reluctance to learning. Providing personal feedback is essential but difficult for teachers in Nepal due to large class sizes, heavy teaching loads, and tight schedules. These constraints make it challenging to offer individualized support while ensuring curriculum completion. Without adequate resources and time, teachers struggle to implement learner-centered strategies that promote meaningful student engagement.

Experiences of Bullying and Its Impact on Student Learning Achievement

Some students of both institutional and community schools have experienced bullying occasionally at School, and on the way to School or the way to their homes. They have also experienced some of their teachers' ill treatment. Because of these behaviours, the students suffering from them feel low self-esteem and lack self-confidence (FGD, CST₁). They are always anxious and stressed because of being dominated by others. The teachers feel that the students being bullied cannot be engaged in their learning as much, and they remain frequently absent from their classes, and in extreme cases. They dropped out of their school education. They claim that it has a long-term psychological effect on those affected by it. In contrast to these statements, FGDs of teachers and students (FGD, CST₇ & FGD, CSS₇) express that they have no cases of bullying and their impact on their teaching and learning process. Similarly, students' FGD (CSS₆) also claims that "general bullying is common; it has no impact on our achievement, but it is taken as entertainment in playing.

This information shows that many students in both school's face bullying, which leads to low self-esteem and anxiety. This bullying affects their ability to learn, causing them to skip classes or even drop out. However, some teachers and students claim that bullying isn't a serious issue and doesn't impact their education, viewing it more as a form of entertainment within friendship. Bullying has a serious impact on student well-being and learning, leading to stress, absenteeism, and even school dropout. While some students and teachers downplay its effects, others report lasting psychological harm. Addressing bullying through supportive school environments is essential to ensure all learners can thrive.

Impact of Extracurricular Activities on Academic Performance and Motivation

Extracurricular activities have a positive impact on the student learning achievement by increasing their knowledge and skill levels, making students aware of time management, enhancing disciplines in them, increasing motivation, providing them with a sense of achievement, encouraging them to work in a team spirit, and developing stronger problem solving and critical thinking skills. The most important thing in them is the growth mindset and competitive spirit, which lead them to gain success with persistent and patient efforts (FGD, CST₁).

While talking to the students in the focus group discussion in different community and institutional schools, though they are aware of them, their parents, as well as many teachers, do not like them to be involved in such activities except quiz contests, debate competitions, and language games (FGD, ISS₇). They believe that engagement in sports and games will hamper their studies, and the students will fall behind their other colleagues.

It indicates that extracurricular activities are beneficial for students as they help improve skills, knowledge, and motivation. These activities teach important life skills like time management, teamwork, and leadership, leading to a growth mindset and perseverance. However, many parents and teachers are hesitant about students participating in sports and games, fearing it might negatively impact their academic performance. Extracurricular activities enhance student motivation, discipline, and critical thinking by nurturing life skills beyond academics. Despite their benefits, many parents and teachers remain concerned that sports and games may distract from studies. Balancing academics with meaningful extracurricular involvement can foster well-rounded student development and sustained achievement.

Difficulties Students Have to Face While Preparing for Exams

While preparing for the exams, the average students of institutional schools feel stress from learning the given notes and marking important points from the examination point of view. Similarly, the average students of community schools do not have any marked points or take precise notes, and feel stressed. The students of rural areas have the problem of time management because on the one hand, they have to walk a long distance to school and on the other hand, they have to assist their parents as usual in-home chores. Now-a-days the, social media do not play the role of helping students, but they will also kill their preparation time if they are not aware of the ill effects (CTI₇). For many students, the exams are a burden, and they want to avoid them, but as a summative evaluation, they have to attend them. Many of the average or poor students have not set their learning plans if their parents and seniors are not there to support their learning, or ask what kind of academic support helps them. The struggling students said that they were unfamiliar with time management, group learning, and question-solving techniques (FGD, CSS₁). They did not have well-formed notes for preparing the exams. They did not have counselling from their teachers. As they were weak in their studies, they were unsure about how to cope with the exams. They could not take any help from their peers as well. The teachers also neglect their problems in the classrooms.

In sum, the above information shows that the difficulties students have to face while preparing for exams are that many students face stress while preparing for exams, especially those from community schools who lack clear notes and guidance. Rural students struggle with time management due to long walking and home chores, which adds to their difficulties. Additionally, many feel unsupported by teachers and peers, leaving them unsure about effective study methods and coping strategies for exams. Students preparing for exams often face stress, especially those in community and rural schools who lack proper notes, guidance, and time due to daily responsibilities. Social media distractions and the absence of structured study plans further complicate their preparation. Limited support from teachers and peers leaves struggling students unaware of effective learning strategies and coping methods.

Family and Socioeconomic Influences

1. Contributions of Parental Involvement to Students' Academic Success
2. Impact of Home Resources like Books, Electricity, Internet, Furniture, etc.
3. Availability of Learning Materials and Support for Learning at Home
4. Impact of Students' Work after School on their Learning Achievement
5. Relation of Mother Tongue Education and Student Learning Achievement

Contributions of Parental Involvement to Students' Academic Success

It is assumed that parents are the first teachers of their children. If they are involved in their children's learning not only in their home environment, but also in the schools, there will be improved academic performance of the students. They can enjoy home learning support, increased regular communication with the School, increased motivation and confidence in the teaching and learning activities (IMC₃ & IMC₄), and there will be long-term relationships with the learners. The students also get parental guidance, have access to learning materials, and get encouragement from their parents.

Set a consistent study routine at home, receive positive and supportive reinforcement from them, and maintain open communication with their parents, which can create pressure for studying (IMC₅). During discussions with parents and teachers, it was found that the approach was only practical in the institutional School, but not in the community school of the district, despite the school being the model Community School of the district (CS₅).

The information above suggests that parental involvement contributes to students' academic success through regular communication with the school, access to learning materials, a consistent study routine at home, positive and supportive reinforcement, increased motivation, and discipline in students. Parental involvement plays a vital role in boosting students' academic success by offering consistent study routines, motivation, and access to learning resources. Regular communication between home and school strengthens student discipline and confidence. However, such engagement is more prominent in institutional schools than in community ones, where support remains limited.

Impact of Home Resources like Books, Electricity, Internet, Furniture, etc.

This age is regarded as the digital age. Without digital devices, nowadays, people feel something important they have missed. Students are also not the exception to this situation but in teachers view, instead of creating positive effect of these devices, the student get lost in Facebook status and lose their almost all time if their parents are not so much careful (CHT₇ & CHT₁). Because of the availability of AI, the students have developed their habits of copying everything from the net and do not go through their textbooks and other reference materials (CHT₃ & CHT₆). However, many students can avail the chance of learning many things from social media and different websites, portals, as well as blogs, if they are sincere in their study (IT₃ & IT₅). Without them and textbooks, electricity, furniture, etc., they lose many learning opportunities. They can use only limited resources for learning and have

limited exposure to current knowledge. They have to be overly dependent on their teachers and their seniors.

This is how they cannot achieve higher learning outcomes. The information indicates that the negative impact of home resources like the internet and digital devices has led to overuse of social media, coping habit and less interest in reading authentic materials. Home resources such as books, electricity, the internet, and furniture greatly influence students' learning opportunities and academic success. While digital access can enhance knowledge, its misuse may lead to distractions and reduced interest in authentic study materials. Limited resources and overdependence on others hinder students' ability to achieve strong learning outcomes.

Availability of Learning Materials and Support for Learning at Home

For almost all teachers as well as students, the textbooks are the mainstay of their jobs of teaching and learning. In the field, it was found that these materials are readily available. In the issues of other materials like calculators, stationery, and mobile smart phones, the students from the rural village are devoid of them and feel a dire need for them for the opportunity of using extensive learning materials. These students do not have sufficient home support for doing their home assignments and project work (FGD, TCS₇). They feel difficulty in completing their assignments and wish their schools would manage some extra supporting classes in their schools. In contrast to this statement, parents of students FGD (PCS₄) express that "Materials like books, the internet, and mobile devices are available for our children to read at home. It has also been used. Home reading materials are also available. A reading environment has also been created.

Regarding the availability of learning materials and support for learning at home, it was indicated that many teachers and students trust heavily in textbooks for learning, which are generally available. However, students in rural areas lack essential tools like calculators and smartphones, making it hard for them to complete assignments. Some parents say that learning materials, including books and internet access, are available at home, providing a good reading environment for their children. Textbooks remain central to learning, but rural students face challenges due to limited access to supplementary tools like calculators and smartphones. This lack of home support impacts their ability to complete assignments and engage fully in learning. While some households offer enriched reading environments, others require stronger institutional support to bridge the resource gap.

Impact of Students' Work after School on their Learning Achievement

Some of the students in the community schools of urban areas found work after school hours. In their experience, if they work two or more than two hours, they do not have enough time to study and complete their homework. They feel mental tiredness and fall asleep soon in the evening. They also have to work in the morning time helping their household workers in the kitchen. The students from the village area, on the one hand, have to walk a long distance; on the other hand, they also have to work on their farm and help their parents. So, they have limited time for reading and doing homework (CHT₁). They do not have enough time for creative work as well as project work. Some of the students who are

eager to study feel disturbances in learning routine. So, they have learning difficulties and have low learning achievement (Parents FGD, CS₁). The teachers (CHT₇ & CHT₆) said that the students, though they come from distant villages, do not work at home but spend their time playing with their cell phones, as their parents are sent from the neighboring country, where they are working.

The information reveals the fact that the impact of students' work after school on their learning achievement results in mental fatigue, limited time for homework completion, creative and project work, and disturbance in the learning routine. After-school responsibilities affect students' ability to focus on their studies, especially in rural and urban community schools. Mental fatigue and lack of time limit their engagement in homework, creative tasks, and project work. These disruptions in their learning routine often lead to lower academic achievement and reduced motivation.

Relation of Mother Tongue Education and Student Learning Achievement

Because of the language diversity, the students' learning achievement has been influenced. The students have to face language barriers. The basic concept in their mind will have been stamped in their home language, but if they are facilitated with the other language, which may have different pronunciation, vocabulary, constructions, as well as cultural icons, their conceptual development might be distorted, and without clear conceptualization, their learning and achievement are affected. There is sufficient evidence (NASA, 2020) indicating students' better and poorer learning achievements. Those who have received their basic education in their home language have shown better outcomes in their later educational Journey (LA₁, LA₂ & LA₅). They actively take part in community activities, improve attendance, discipline, etc. They feel the schools where they have been admitted are their own if they can interact in their own home language. However, "We have a local curriculum. No mother tongue students. It is not that the influence of the mother tongue in the classroom is weakened" (LA₄). Multilingualism has not affected the learning achievement of students in this province. So, it is not the reason for the drop in results.

It indicates that the relation of mother tongue education and student learning achievement results depends on actively taking part in community activities, improved attendance, discipline, and feeling that the schools where they have been admitted are their own if they can interact in their own home language. Mother tongue education positively impacts student learning achievement by fostering clearer conceptual understanding and stronger school engagement. Students educated in their home language show better attendance, discipline, and participation in community activities. While some regions see limited influence, embracing linguistic diversity can strengthen both academic success and social inclusion.

Future Directions and Improvements

Future strategies to improve overall student learning outcomes

Planning ensures the success of any activities. As seen in the NASA reports, there is a wide gap in student learning achievement. Addressing such achievement gaps in education requires well-planning for future strategies. These strategies include teacher support and

training for refreshment, using student-centered teaching methods, creating real world situation for student better learning and long-term retention, using appropriate types as well as the form of assessment, exercising can problem solving and critical thinking on the part of the students led by teachers, and providing sufficient opportunities in creative art and work (EDCU₁ &EDCU₃).

For developing these future strategies, there must be curriculum reformation for student learning as well as for the teacher professional development, technology integration for both teaching and non-teaching staff, community involvement and partnerships, and an inclusive but conducive learning environment that can address the differentiated students' needs and demands of teachers to improve learning achievement and equity in education. In this context, one of the personnel (LA₄) expressed their opinion that the local government is conscious of improving the quality of education. "Our role in improving the quality of education is in implementation. Our plan is to prioritize equity and improve overall outcomes. In the field, these things principally, because of the negligence in educational monitoring, supervision and follow-up programs of the educational line agencies, they are found very rare.

The information discussed above indicates that the future strategies to improve overall student learning outcomes are to be made on curriculum reformation for student learning, teacher professional development, technology integration, community involvement and partnerships, as well as an inclusive but conducive learning environment, differentiated learning, and equity in education. Improving overall student learning outcomes requires thoughtful planning, inclusive curriculum reform, and continuous teacher development. Integrating technology and fostering strong partnerships among schools, communities, and local governments can create engaging and equitable learning environments. Consistent monitoring and implementation of strategies will be essential for meaningful and lasting educational progress.

Findings from Qualitative Analysis

The findings from qualitative analysis have been organized under the following main themes:

Achievement Gaps and Influencing Factors

- Educational outcomes in Nepal vary due to geographic disparities, socio-economic conditions, and unequal resource distribution. Students from marginalized regions and lower-income families face challenges like limited access, poor infrastructure, and minimal support. Traditional teaching practices and weak decentralization further restrict engagement and widen achievement gaps.
- School location, leadership quality, and parental engagement play major roles in shaping student performance. Institutional schools benefit from private investment, stronger accountability, and better collaboration. In contrast, community schools struggle with limited supervision, political interference, and weak team dynamics.
- Using data on teacher practices, school conditions, and student demographics helps identify barriers to learning. Key influences like feedback, infrastructure, and home

language guide targeted interventions. Local agencies are working on inclusive policies, teacher support, and community involvement to bridge achievement gaps.

- Students from disadvantaged backgrounds often attend poorly resourced schools and receive little academic support at home. Economic hardship and daily responsibilities hinder their ability to focus on studies. Despite aspirations for better outcomes, their learning journey is weighed down by structural limitations.
- Language barriers and cultural disconnects negatively impact comprehension and academic performance among diverse caste and ethnic groups. Underrepresentation in curriculum and long distances to school increase absenteeism and disengagement. Students feel alienated from their schools, reducing their sense of ownership and motivation.
- Girls often fall behind due to increased domestic responsibilities and societal pressures as they grow older. Factors like unsafe travel, menstruation challenges, and cultural norms limit their school participation. Institutional schools show better outcomes due to supportive environments and infrastructure.
- Repeatedly low results in national assessments are rooted in ineffective policies, inadequate funding, and poor teacher training. Lack of timely feedback and data sharing prevents corrective action. Outdated pedagogy and minimal community engagement sustain low achievement across years.

School-Based Strategies and Practices

- Traditional teaching methods in Nepalese schools focus heavily on rote learning, limiting students' ability to engage in application-level and higher-order thinking tasks. Differentiated instruction, peer collaboration, and problem-solving exercises remain underutilized in practice. To foster deeper understanding, a shift toward interactive, learner-centered strategies is essential.
- Digital tools have immense potential to personalize learning and boost student engagement through multimedia resources and online collaboration. However, many schools, despite having devices like laptops and smart boards, fail to integrate technology meaningfully into pedagogy. Prioritizing digital literacy and practical tech usage is critical to realizing its full educational impact.
- As girls grow older, socio-cultural barriers often lead to reduced academic performance and participation. Intentional strategies like mentorship by female role models, scholarships, and inclusive programs can help bridge this gender gap. With sustained support, girls can outperform their peers and thrive in academic settings.
- Despite its promise, differentiated instruction is rarely applied effectively in Nepal's classrooms due to time limitations and rigid curricular structures. Most teaching remains lecture-based, sidelining hands-on, personalized learning experiences. Overcoming these implementation barriers is key to engaging all learners and promoting equity in achievement.
- The EDCU plays a pivotal role in advancing student performance by supporting ICT training, teacher development, and collaborative efforts with schools and parents. However, geographical and logistical constraints limit consistent monitoring and

participation. Addressing these gaps through targeted curriculum and resource upgrades will strengthen long-term learning outcomes.

- Students with lower achievement benefit greatly from clear guidance, collaborative learning, and emotional support through praise and peer engagement. Differentiated instruction and real-life applications help build motivation and academic confidence. Inclusive classroom strategies empower every student to progress at their own pace.
- Community schools in Nepal struggle with resource shortages, low parental engagement, and systemic inequalities that hinder effective teaching. Large class sizes and cultural factors further obstruct the adoption of student-centered methods. Nonetheless, strategic interventions, focused training, and inclusive policies offer pathways for gradual improvement.

Role of Institutions and Education Agencies

- Local education agencies in Nepal are instrumental in driving school-level improvements by organizing teacher training, supervising performance, and ensuring equitable resource distribution. Their efforts include expanding technology access and fostering community partnerships to support student learning. Despite existing infrastructure and socio-economic limitations, their commitment to policy implementation and awareness-building creates a more inclusive educational landscape.
- To bridge gaps between urban and rural schools, institutional and community setups, and among diverse socio-economic groups, local agencies offer targeted interventions like mid-day meals, support for marginalized and differently-abled students, and mother tongue instruction. They also enhance teaching quality through professional development initiatives across different regions. These decentralization measures empower schools and communities to create equitable learning opportunities tailored to local needs.
- Effective school leadership hinges on visionary head teachers who set clear goals, foster positive learning environments, and encourage teacher collaboration. Their ability to manage resources and resolve conflicts directly affects coordination and school climate. However, when leadership is weak or fragmented by political or personal divisions, school performance and unity suffer.
- Institutional schools show better academic performance due to strong parental involvement, consistent discipline, and proactive teaching practices. Their urban location allows for better infrastructure, frequent meetings, and more accountability from both teachers and parents. Conversely, community schools often lag due to lower engagement, fewer resources, and minimal support structures, particularly in remote settings.

Student Experience and Motivation

- Students respond positively to homework when it's paired with timely, constructive feedback that reinforces learning. Without feedback, they risk internalizing mistakes and experiencing heightened stress. Properly guided homework can foster academic growth and discipline, while unchecked assignments can become counterproductive.

- Teacher feedback tends to focus on high-performing students, often overlooking those who need practical and personal support. Group-based feedback is more common than individualized guidance, which limits meaningful skill development. To improve outcomes, teachers must prioritize inclusive and personalized feedback strategies.
- Overcrowded classrooms, heavy teaching loads, and tight schedules hinder teachers' ability to deliver individual feedback. These barriers make it difficult to adopt learner-centered approaches and track student progress effectively. Without adequate time and resources, personal feedback remains a challenge in Nepal's schools.
- Bullying negatively affects student confidence, attendance, and academic engagement, sometimes leading to school dropout. Although some view it as harmless peer interaction, others experience lasting emotional harm. Creating safe and supportive school environments is essential to prevent bullying and safeguard student learning.
- Extracurricular activities support personal growth by enhancing motivation, teamwork, and leadership skills. Despite their value, many parents and educators worry these activities may distract from academic performance. A balanced approach that integrates extracurriculars with studies promotes holistic student development.
- Students often struggle with stress and poor preparation, especially in rural areas where resources and guidance are limited. Household responsibilities and lack of structured study routines compound these challenges. Better support from teachers and families can help students prepare more effectively and reduce anxiety.

Family and Socioeconomic Influences

- Parental involvement enhances students' academic performance through structured study routines, regular communication with schools, and motivational support. These efforts build discipline and confidence in learners, especially when learning resources are accessible at home. However, such involvement is notably stronger in institutional schools than in community ones.
- Home resources like books, electricity, and internet access play a critical role in students' academic success. While technology can enrich learning, overuse of social media and passive habits can lead to reduced engagement with authentic materials. Students lacking these resources often depend heavily on others, limiting their ability to reach higher achievement levels.
- Textbooks are widely used, but many rural students lack complementary tools like calculators and smartphones, which hinders assignment completion. Though some families provide a supportive reading environment, others struggle to offer sufficient materials. Stronger institutional support is needed to bridge this gap and promote equitable learning conditions.
- Students who work after school often face mental fatigue and have limited time for study and creative activities. This disrupts their learning routines and reduces focus on academic tasks. The result is lower achievement and decreased motivation, especially in under-resourced community schools.

- Education in a student's home language fosters clearer conceptual understanding, improved school attendance, and deeper community engagement. Learners feel more connected to their schools and participate actively when their language is respected. Promoting linguistic diversity supports academic success and social inclusion, even where its impact varies across regions.

Future Directions and Improvements

- Improving student learning outcomes requires inclusive curriculum reform, ongoing teacher professional development, and strategic use of technology. Strong community partnerships and differentiated instruction are key to meeting diverse learning needs. Regular monitoring and effective implementation of policies will help drive long-term progress in equitable education.

Achievement Gaps and Influencing Factors

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NASA has consistently indicated the recurring results of a large number of students at below grade level declining pattern of achievement, an alarming gap between the intended and achieved Curriculum, wide gaps on achievement between provinces, districts, types of schools, Nepali and non-Nepali speaking children, appropriate age and over aged children, low economic and social background and high economic and social background children, Janajati and Dalit children, etc. Every NASA report has recommended some practical measures of overcoming these problems, like differentiated instructions, individual supports,

minimum standard for physical infrastructure, teacher trainings, incentives, and retention of good teachers, remedial teaching, libraries, laboratories, and student clubs, justified distribution of resources, contextualization of curriculum, and close monitoring and supervision of educational programs, etc. The educational system's interventions have not been effective in improving the quality of learning at the school level.

Students' higher learning achievement is not the result of only one or two influencing factors but many like school types, location of schools, parents' education and occupation, but some inevitable requirements components include a minimum standard of school infrastructure, visionary, proactive, and encouraging school Leadership, teamwork and collaboration among school staff, resource mobilization, quality teaching, parents involvement, Formative evaluation and remedial treatments, emphasis on practical teacher trainings along with the commitment and neutrality in all stake holders.

Chapter Five: Discussion of Findings

The findings from both quantitative and qualitative analyses, along with their interpretation, have been discussed in relation to the factors affecting students' learning achievement under various themes, including family backgrounds and socioeconomic status, external responsibilities and home learning conditions, school environment and institutional quality, teacher competency and instructional practices, among others.

Family Background and Socioeconomic Status

The analysis shows students from educated and economically secure households consistently perform better across all subjects, echoing Coleman's (1966, 1968) assertion that family income and parental education are key predictors of academic success. The disparities in achievement tied to occupation and caste, such as laborers' children scoring below 470, while children of government officials score above 500, support Choe's (2020) finding that parental support and home literacy have a substantial impact on achievement. These connections underscore the need for targeted interventions to support disadvantaged families through parental education and school-home partnerships. Parental education, income, and occupation create foundational conditions for student success. Supportive parenting that fosters autonomy leads to better outcomes, while controlling behavior can hinder progress. When families are actively engaged, offering encouragement, homework help, and emotional stability, achievement improves visibly.

External Responsibilities and Home Learning Conditions

The analysis has highlighted the importance of homework support and tuition in boosting scores, which closely relate to findings from Ehrenberg et al. (1989), and Yuan and Keeves (2001) about the positive effects of home engagement and time-on-task. Meanwhile, students in rural and marginalized settings, often burdened by household labor, perform worse, supporting Heady's (2003) argument that external work responsibilities undermine learning. These findings suggest a need for flexible school schedules and community-driven support models that account for socioeconomic realities. External duties like work or household chores negatively affect learning, especially in low-income settings. Consistent

school attendance and time spent on homework are critical for academic progress. Developing routines around study and reducing absenteeism can strengthen achievement. Despite some progress in Grade 10 scores, very few students reach advanced proficiency, confirming that systemic inequities limit long-term success. This connects back to the multifactorial nature of achievement highlighted in the literature review, from family background to school quality to teacher practice, and points toward the need for integrated interventions rather than isolated reforms.

School Environment and Institutional Quality

The data show stark differences between institutional and community schools, with performance gaps exceeding 40 points in some cases. These disparities directly reflect Heneveld and Graig's (1969) emphasis on school climate and learning resources. The shortage of textbooks and variability in academic support reinforce Pennywick's (1993) claim that management quality and resourcing are pivotal, especially in underfunded settings. These insights point to the importance of investing in school infrastructure, accountability systems, and equitable resourcing. Supportive school environments, resource availability, and strong teaching-learning processes are vital for success. Effective school management and foundational learning materials enable learners to thrive, particularly in under-resourced contexts. A favorable institutional climate can mitigate disadvantages related to geography and poverty.

Teacher Competency and Instructional Practices

The fact that students can recall facts but struggle with application and synthesis aligns with Anderson and Burns (1987), who stress the importance of mastery-based instruction. The informal support yielding results hints at effective classroom teaching, underscoring Sanders et al. (1997) and Saha's (1983) view that teacher behavior and expectations greatly impact learning. This supports policy action on continuous teacher training and mentoring, particularly in rural and community schools. Teacher performance, expectations, and behavior have a direct impact on student achievement. Teachers who assign meaningful tasks, prepare lessons, and engage students effectively contribute to mastery learning. Continuous professional development enhances instructional quality and equity.

School Leadership

The variation in institutional success is also likely shaped by school management and head teacher leadership, which Bossert et al. (1982) and Hallinger et al. (1996) identify as influential in shaping organizational culture and learning environments. The regional data imply that schools in provinces like Bagmati benefit from stronger academic systems, which may be linked to better school leadership and governance mechanisms. Strengthening leadership pipelines could be key to driving sustainable change across districts. School leaders influence success through their management of staff, culture, and strategic priorities. When principals foster collaborative and efficient environments, learning improves. Strong instructional leadership is especially important in low-performing schools.

Community Engagement

The findings of better performance in urban and more organized schools resonate with Sawada (1999) and Hara et al. (2020), who found that community participation improves accountability and learning outcomes. The MOEYS (2018) reports reinforce this by showing that schools involving local communities in planning and decision-making see greater success. Expanding community-school collaboration models, especially in low-performing rural areas, could help address geographic inequities and build collective ownership of learning. Active community engagement boosts accountability and relevance in schools. Partnerships between families, local stakeholders, and educators help tailor learning to student needs. Community involvement also promotes transparency and shared responsibility for educational outcomes.

Curricular Demands and Cognitive Development

The analysis shows students struggle more with abstract and higher-order thinking as they progress, especially in subjects like Math and Science. This supports Anderson and Burns' arguments and aligns with broader global literature on the gap between rote learning and critical thinking skills development. Strengthening pedagogical approaches that build problem-solving, analysis, and synthesis skills, especially in early grades, can help address this persistent weakness. Student achievement is shaped by overlapping influences from home, school, teaching, leadership, and community settings. These domains reinforce or hinder progress depending on how holistically they are addressed. Strategically addressing all factors is essential to promote quality and equity in education.

Triangulation of Findings from both Quantitative Qualitative Analysis as well as Theoretical Perspectives

The overall findings across Grades 3, 5, 8, and 10 show a pattern of early learning decline followed by partial recovery at higher grades, alongside persistent structural inequalities. At Grade 3 (2012–2015), national mean scores declined sharply. Nepali fell from 63 to 52, and Mathematics dropped from 60 to 45. Girls slightly outperformed boys in Nepali, while performance in Mathematics was nearly equal. Community schools scored consistently below the national average, while institutional schools performed higher, though their results also declined by 2015. More recent primary data show partial improvement. Between 2020 and 2024, Reading increased slightly from 43.53 to 44.9, while Numeracy rose from 37.22 to 50.16. However, boys outperformed girls in Numeracy in 2024 (53.2 to 49.9). Provincially, Bagmati, Gandaki, and Koshi performed highest, while Karnali, Madhes, and Sudurpashchim recorded lower achievement levels.

At Grade 5 (2012–2015), declines were even more severe. Nepali dropped from 60 to 46, Mathematics from 53 to 48, and English from 53.61 to 46.78. In English content areas, Reading declined from 50.2 to 45.7, Writing from 49 to 40.2, and Grammar from 56.5 to 53.4, although Vocabulary improved from 57.8 to 62.2. Cognitive skills such as Knowledge fell from 64 to 55.5 and Comprehension from 50 to 41.5, while Application improved slightly from 49 to 53.4. Institutional schools consistently outperformed community schools despite overall declines. Between 2018 and 2022, the national mean score in Nepali remained almost

stable, slightly decreasing from 500 to 499, while Mathematics declined more noticeably from 500 to 485. In 2018, girls slightly outperformed boys in Nepali, whereas boys performed marginally better in Mathematics, showing very small gender differences overall. In 2022, girls scored higher than boys in Nepali (503 to 496), but Mathematics results remained nearly equal between genders. Community schools recorded lower performance compared to institutional schools in both years, although the 2022 figures appear to be presented in percentage form (36.7 to 63.3 in Nepali and 39.5 to 60.5 in Math), indicating strong institutional advantage. English and Science results for 2022 cannot be compared with 2018 due to the absence of corresponding baseline data.

At Grade 8, achievement declined in earlier cycles. Between 2011 and 2013, Nepali fell from 49 to 48, while Mathematics dropped sharply from 43 to 35. Between 2017 and 2020, Nepali remained stable at 500, but Mathematics declined from 500 to 483, and Science dropped from 500 to 470. Boys outperformed girls in Mathematics (e.g., 505 to 495 in 2017) and Science (503 to 498 in 2017). Institutional schools maintained a strong advantage; for example, in Science 2020, institutional schools scored 500 compared to 463 in community schools.

At Grade 10 (2019–2023), performance showed clearer recovery. English improved from 500 to 515, Science increased from 500 to 505, while Nepali remained stable at 499. Proficiency levels in English shifted upward dramatically: students at pre-basic level decreased from 30% to 4%, while advanced-level students increased from 9% to 32%. Mean scores improved for both boys (506 to 519) and girls (496 to 512). Institutional schools continued to outperform community schools, for example in English (562 to 503), Mathematics (536 to 487), and Science (540 to 496). Provincial disparities remained large at Grade 10. Bagmati and Gandaki recorded the highest scores (e.g., English 536, Math 517, Science 530), while Karnali and Sudurpashchim lagged behind (e.g., Math 472, English 490, Science 487).

Across all grades and subjects, parental education and occupation showed strong positive relationships with achievement. Students whose parents held Bachelor's or Master's degrees and those from professional occupations (teaching, government service, business) consistently scored higher. However, declines were observed even among these advantaged groups in earlier cycles. Overall, the data indicate significant learning declines between 2012 and 2015, partial stabilization and recovery after 2018, and stronger improvement at Grade 10 especially in English in 2019–2023. Despite some progress, persistent disparities by province, gender, ethnicity, home language, parental background, and especially school type continue to shape student achievement outcomes in Nepal.

Overview of Findings

The analysis reveals that student achievement in Nepal is influenced by family, home responsibilities, school environment, teacher competency, leadership, community participation, and curricular demands. Quantitative data show fluctuating but mostly declining scores: Grade 3 Arithmetic fell from 61 in 2012 to 44.5 in 2015, Numeracy from 54 to 49.3, and Comprehension from 59 to 52.9. These outcomes confirm that systemic weaknesses persist, requiring multi-dimensional reforms.

Family Background and Socioeconomic Status

Achievement differences are strongly linked to family income and education. In Grade 10, children of government employees averaged 508 compared to laborers' children at 473, confirming Coleman's theory on family background. Similar disparities appear in Grade 8, where Brahmin/Chhetri students averaged 489, Janajati 487, and Dalit students just 479, reflecting caste-linked inequities in access and opportunity.

Role of Parental Engagement

Parental education and support influence the students' performance. In Grade 5 (2015), students who received homework support scored 7–9 points higher across content areas than those without it. Likewise, tuition proved beneficial: Grade 10 students who received tuition outperformed their peers by 4–6 points in Mathematics, suggesting that active parental or substitute academic engagement drives achievement gains.

External Responsibilities and Home Learning Conditions

Home duties and limited study time are major barriers. In rural areas, students who worked part-time reported lower attendance and performed poorly in Numeracy (Grade 3: 49.3 in 2015) and Application (Grade 5: 44 in 2012, declining further by 2015). The Mid-Western provinces, where children contribute more to household labor, consistently recorded the lowest achievement levels, with averages below 480 in Grades 8 and 10.

Attendance, Absenteeism, and Study Routines

Student absenteeism is reflected in declining results across grades. Grade 3 Comprehension fell from 59 in 2012 to 52.9 in 2015, while Application dropped from 60 to 54.9 in the same period, indicating a loss of continuity in learning. At higher levels, absenteeism compounded by weak study habits likely contributed to the decline in Grade 8's national average from 499.48 in 2017 to 483 in 2020.

School Environment and Institutional Quality

Institutional schools consistently outperform community schools. In Grade 5 (2015), institutional school averages were nearly 20 points higher than community schools across Mathematics, Nepali, and English. By Grade 10 (2019), the gap widened, with institutional schools averaging above 500 while many community schools hovered around 480, demonstrating the persistent two-tier system.

Importance of Resourcing and Infrastructure

Resource constraints are evident in rural schools. For instance, Valley schools in Grade 5 scored 10–15 points higher in Mathematics compared to remote rural counterparts in 2015, largely due to access to teaching aids and manageable class sizes. Similarly, urban Grade 8 schools in 2020 averaged nearly 15 points higher than rural schools, reflecting the resource divide.

Teacher Competency and Instructional Practices

Teacher preparation and expectations strongly affect outcomes. In Grade 3, while Algebra improved from 40 in 2012 to 57.4 in 2015, Geometry dropped from 55 to 46.6, suggesting uneven instructional quality across domains. At Grade 10, Arithmetic fell from

510 in 2019 to 482 in 2023, and Statistics from 511 to 486, showing that students are often taught for recall rather than conceptual application.

Professional Development and Teacher Training

Weak pedagogy is visible in cognitive performance. Grade 5 Comprehension fell from 56 in 2012 to 51 in 2015, and Application dropped from 52 to 45, reflecting limited teacher ability to foster higher-order skills. In Grade 10, Application averaged just 483 in 2022, well below Knowledge (493), underscoring the gap between teacher instruction and the development of analytical skills.

School Leadership and Governance

Provinces with stronger leadership show better results. Bagmati Province maintained scores above 489 in Grade 8 (2020), while Madhesh dropped sharply from 521 in 2018 to 486 in 2022. The role of governance and school management in sustaining performance becomes clear when contrasting Valley schools, which consistently outperform rural schools by 10–15 points.

Community Engagement and Accountability

Community support correlates with better outcomes. In Grade 5 (2012 and 2015), Valley schools with active community participation scored notably higher in Nepali and English than remote schools with weak engagement. By Grade 10 (2023), schools with stronger School Management Committees also maintained averages closer to 490–495, while those with weaker community oversight fell below 480.

Curricular Demands and Cognitive Development

Students' weak performance in higher-order tasks indicates curriculum-pedagogy mismatch. In Grade 3, although Algebra rose, Comprehension and Application scores consistently declined, showing rote reliance. Similarly, in Grade 10 (2023), Knowledge averaged 493 but Application lagged at 483, revealing that students master factual recall but struggle with analytical reasoning and synthesis.

Triangulation of Grade-Level Findings

The grade-level data confirm uneven progress. In Grade 3, only Algebra showed improvement, while Arithmetic, Geometry, and Numeracy all declined between 2012 and 2015. In Grade 5, nearly every subject area weakened, except for modest urban and Valley gains. By Grade 8, national averages fell, and by Grade 10, broad declines were observed in Mathematics, with Geometry dropping to 486 and Statistics to 486 by 2023.

Disparities in Grades 8 and 10

Regional and social disparities remain entrenched. In Grade 8 (2020), Dalit students scored 479 compared to Brahmin/Chhetri at 489, highlighting systemic inequalities. Gender parity existed, yet caste gaps persisted. In Grade 10, the content areas of Mathematics declined sharply from 2019 to 2023, with students taking tuition averaging 4–6 points higher than those without, indicating a reliance on private support to compensate for systemic weaknesses.

Implications and Conclusion

Altogether, the data confirm that Nepal's education system suffers from structural

inequities across provinces, caste groups, and types of schools. Family background, attendance, resources, teacher quality, and leadership converge to explain why Algebra or urban schools see improvements while Arithmetic, rural areas, and marginalized groups decline. Without systemic reforms that expand equity, strengthen teaching, and promote accountability, Nepal risks perpetuating achievement gaps and falling short of sustainable educational development goals.

Chapter Six: Summary of Findings, Conclusion, and Implications

This chapter presents the summary of findings, conclusion, and recommendations based on the above data analysis, discussion and interpretation.

Summary of Findings

1. In grade Three, between 2012 and 2015, the national mean scores declined noticeably in both subjects, with Nepali falling from 63 to 52 and Mathematics dropping from 60 to 45. Girls slightly outperformed boys in Nepali in both years, while boys and girls performed equally in Mathematics. Community schools consistently recorded lower mean scores than the national average in both subjects and both years. Institutional schools achieved higher scores than community schools, although their results also declined sharply by 2015. Overall, the data indicate a general downward trend in achievement across subjects, genders, and school types, with persistent disparities between community and institutional schools.
2. Between 2020 and 2024, the national mean score in Reading increased slightly from 43.53 to 44.9, showing modest improvement. In Numeracy, the national mean rose from 37.22 to 50.16, indicating strong progress over the period. In 2020, boys performed slightly better than girls in Numeracy (39.11 to 35.92), while Reading performance between girls and boys was nearly equal. In 2024, detailed gender data for Reading are not available, limiting gender comparison for that subject. However, in Numeracy 2024, boys (53.2) outperformed girls (49.9), suggesting a widening gender gap in favor of boys in mathematics-related skills.
3. Gandaki, Koshi, and Bagmati provinces lead in both reading and numeracy, while Karnali, Madhes, and Sudurpashchim have low achievement. Gender differences in reading are small, with girls slightly ahead, whereas boys outperform girls in numeracy. Ethnic disparities are evident, with Madhesi and Pahadi groups generally scoring higher than the Himali communities. Overall, progress is visible, but gaps remain across skills, regions, genders, and ethnic groups, highlighting the need for targeted support.
4. In grade five, between 2012 and 2015, the national mean scores declined in all three subjects, with Nepali dropping from 60 to 46, Mathematics from 53 to 48, and English from 54 to 47. In 2012, girls slightly outperformed boys in Nepali, while boys performed slightly better in Mathematics and English; however, by 2015, gender differences became minimal across subjects. Community schools generally recorded lower scores than institutional schools in most subjects and both years, although English in 2012 shows an unusual pattern where community schools (66) scored higher than the national mean. Institutional schools consistently achieved the highest scores in all subjects despite experiencing declines by 2015. Overall, the data indicate a downward trend in student achievement over time, with persistent disparities between community and institutional schools.
5. Between 2018 and 2022, the national mean score in Nepali remained almost stable, slightly decreasing from 500 to 499, while Mathematics declined more noticeably from 500 to 485. In 2018, girls slightly outperformed boys in Nepali, whereas boys

performed marginally better in Mathematics, showing very small gender differences overall. In 2022, girls scored higher than boys in Nepali (503 to 496), but Mathematics results remained nearly equal between genders. Community schools recorded lower performance compared to institutional schools in both years, although the 2022 figures appear to be presented in percentage form (36.7 to 63.3 in Nepali and 39.5 to 60.5 in Math), indicating strong institutional advantage. English and Science results for 2022 cannot be compared with 2018 due to the absence of corresponding baseline data.

6. In grade eight, between 2011 and 2013, the national mean score in Nepali slightly declined from 49 to 48, while Mathematics dropped sharply from 43 to 35. In 2011, boys outperformed girls in Mathematics (45 to 41), but in Nepali their performance was almost equal; by 2013, gender differences in Nepali disappeared, while boys continued to score higher in Mathematics (38 to 33). Community schools consistently recorded much lower scores than institutional schools in both years and both subjects. The achievement gap between community and institutional schools was especially wide in Mathematics, increasing from 39 to 63 in 2011 to 26 to 57 in 2013. Social Studies (2011) and English (2013) cannot be compared due to the absence of corresponding data for both years.
7. Between 2017 and 2020, the national mean score in Nepali remained stable at 500, while Mathematics declined from 500 to 483 and Science dropped more sharply from 500 to 470. In 2017, gender differences were minimal in Nepali, boys outperformed girls in Mathematics (505 to 495), and boys also scored slightly higher in Science (503 to 498). In 2020, girls slightly outperformed boys in Nepali (502 to 499), but boys continued to perform better in Mathematics (490 to 478) and Science (473 to 468). Community and institutional school results for 2020 in Nepali and Mathematics are not comparable due to reporting in percentage form, limiting school-type analysis for those subjects. However, in Science 2020, institutional schools (500) performed considerably better than community schools (463), maintaining the institutional advantage observed in 2017.
8. National performance shows mixed progress in grade 10 in the NASA report 2023. Science scores increased slightly from 500 (2019) to 505 (2023), English improved strongly from 500 to 515, and Nepali stayed almost the same at 499. Most students are in proficiency level I & II; only a few reach advanced levels. In English at grade 10, 32.4% students achieved advanced proficiency level lagging behind all other subjects.
9. Large provincial disparities exist as Bagmati and Gandaki consistently score highest (Math 517, English 536, Science 530), while Karnali and Sudurpaschim lag behind (Math 472, English 490, Science 487). Gender differences show that girls perform better in Nepali (501 > 496), whereas boys perform better in English, math, and science.
10. School type strongly affects achievement; private school students perform better than community school students in all subjects, with large gaps in English (562 > 503), math (536 > 487), and science (540 > 496). Overall, progress exists in some areas, but gaps by subject, province, gender, and school type remain different.

Trends in Math

1. The mathematics data reveal a consistent pattern of decline across multiple grades, years, and social groups, with only limited areas of stability and improvement. Overall achievement in Grade 8 declined between 2011 and 2013 (43 to 35) and again between 2017 and 2020 (500 to 483), indicating persistent challenges in mathematics learning outcomes.
2. Content-wise, Algebra showed improvement at Grade 3 between 2012 and 2015, but most other domains—including Geometry, Arithmetic, and Statistics—declined across grades, with Algebra at Grade 8 experiencing one of the sharpest drops (48 to 28). At the cognitive level, performance decreased notably in Knowledge, Comprehension, and Application across Grades 3, 5, and 8, while Higher Ability skills remained consistently weak, highlighting limited development of higher-order mathematical thinking.
3. Proficiency distributions in Grade 8 further show a shift from higher to lower-middle performance bands between 2017 and 2020, suggesting a downward movement in advanced achievement.
4. Geographically, strong regional disparities persist. The Valley consistently recorded the highest achievement across grades and years, while Mountain and some remote regions lagged behind. Rural–urban gaps widened particularly at Grade 8, where rural scores dropped sharply while urban performance remained comparatively stronger.
5. Provincial data show overall declines between assessment cycles, with Bagmati and Gandaki generally performing better, and Karnali and Sudur Pashchim remaining among the lowest-performing provinces. Ecological zone comparisons confirm these inequalities, although differences were smaller in the later Grade 8 (2017–2020) cycle.
6. Social and demographic disparities are also evident. Gender gaps were generally small, with boys slightly outperforming girls in most years, though in Grade 8 (2011–2013) the gap temporarily reversed due to a sharper decline among boys. Caste and ethnicity data reveal persistent inequalities: while some groups improved in lower grades, Grade 8 results (2011–2013) showed substantial declines across all groups, particularly among Dalit and Madhesi students.
7. Later Grade 8 data (2017–2020) show more mixed trends, with some improvement among Dalit and “Other” groups, though disparities remain. Home language differences persist as well, with Nepali-speaking students generally outperforming others, though both groups experienced declines in later years.
8. Grade 10 in both years 2019 and 2023, more students fall under the proficiency level I where students are in pre-basic and advance levels are in decreasing trends. Regarding provincial achievement, Bagmati province is highest achiever and Karnali province is the lowest achiever in both years though the mean scores was in increasing trend. Likewise, boys are outperformers in both years than girls and schools located in urban is higher achiever than schools in rural areas.
9. Institutional factors strongly influence achievement. Institutional schools

consistently outperform community schools across all grades and years, despite both experiencing overall declines. Parental education shows a clear positive relationship with student achievement: students whose fathers or mothers have higher educational qualifications consistently achieve higher mean scores. However, even these groups experienced downward trends in recent years. Parents' education and nature of job affect child's learning status.

10. Parental occupation is associated with performance, as students from professional or government-employed backgrounds generally score higher than those from agricultural or household occupations, though declines are visible across nearly all occupational categories over time.
11. After-school support, including tuition, is associated with relatively higher achievement compared to other support types, but performance declined across all categories in recent cycles. Even students receiving tuition and parental help showed decreasing mean scores, indicating that broader systemic factors may be influencing mathematics learning.
12. Overall, the Mathematics findings demonstrate a sustained decline in achievement across grades, cognitive levels, regions, and social groups, with persistent structural inequalities linked to geography, school type, parental education, occupation, caste/ethnicity, and language background. While some localized improvements are visible, the general trend points to weakening foundational skills and limited growth in higher-order mathematical competencies.

Trends in Science

1. The Science findings indicate a clear pattern of decline at Grade 8 (2017–2020) followed by partial recovery at Grade 10 (2019–2023), alongside persistent socio-demographic disparities. Provincially, all provinces experienced declines in Grade 8, with Bagmati consistently remaining the highest-performing province and Madhesh showing the sharpest drop.
2. By Grade 10, most provinces demonstrated recovery, again led by Bagmati, while Madhesh showed notable improvement, though inter-provincial gaps persisted.
3. Gender disparities were consistent across all years, with boys outperforming girls in both Grade 8 and Grade 10; although both groups improved at Grade 10, the gender gap remained evident. Home language differences also persisted, as Nepali-speaking students outperformed students from other language backgrounds in both 2019 and 2023, though the gap narrowed slightly due to gains among non-Nepali speakers.
4. School type showed one of the strongest and most stable disparities: institutional schools outperformed community schools in both years at Grade 10, with only modest improvement among community schools and a consistently wide achievement gap.
5. Parental education demonstrated a strong positive relationship with student performance, particularly at Grade 10, where students whose fathers or mothers held Bachelor's or Master's degrees achieved the highest scores. While Grade 8 saw broad declines across all maternal education levels between 2017 and 2020, Grade 10 results

were generally higher and more stable, confirming the strong influence of parental education.

6. Similarly, parental occupation was closely associated with achievement: students whose parents worked in professional or formal sectors (teaching, government service, business, foreign employment) consistently outperformed those from agricultural or household backgrounds. Although most occupational groups experienced declines in Grade 8, partial recovery was visible in Grade 10.
7. After-school support showed mixed patterns. Students receiving tuition or peer support generally performed well, yet interestingly, those reporting no support recorded the highest scores in both 2019 and 2023, suggesting that higher-performing students may be more independent learners.
8. Homework and feedback frequency showed slight advantages for regular participation at Grade 8, but by Grade 10, performance differences across participation levels were minimal, indicating that other structural and socio-economic factors may exert stronger influence at higher grades.
9. Overall, the Science data highlight a temporary downturn at Grade 8 followed by recovery at Grade 10, with persistent inequalities linked to province, gender, language background, school type, parental education, and occupation.

Trends in Nepali

1. The findings from Nepali achievement data reveal substantial fluctuations across grades, years, and background variables. At Grade 3, performance between 2012 and 2015 showed mixed trends: reading (64 to 54) and writing (54 to 41) declined notably, while grammar (57 to 65) and vocabulary (60 to 75) improved, indicating gains in language structure and word knowledge despite weaker literacy skills.
2. However, cognitive performance declined overall, with knowledge (72 to 64), comprehension (65 to 56), and application (56 to 51) all decreasing. At Grade 5, the decline was more severe between 2012 and 2015, as reading (56 to 38.6), writing (58 to 33), grammar (64 to 37.5), and vocabulary (70 to 52.4) all dropped sharply. Similarly, cognitive levels showed substantial losses, particularly in application (61 to 32.1) and higher ability (47 to 31.2), indicating weakening higher-order skills.
3. Diversity analysis at Grade 3 and Grade 5 revealed widespread declines across ecological zones, school location, and social groups, with rural students, Mountain regions, and Madhesi and minority groups experiencing larger drops. Institutional schools consistently outperformed community schools, though both saw significant declines during this period.
4. Parental education demonstrated a strong positive relationship with achievement in 2012, but the sharp fall in 2015 reduced performance across all education levels, narrowing earlier gaps. Likewise, students receiving homework, feedback, and after-school support performed better in 2012, yet all support categories declined markedly by 2015.

5. More recent Grade 5 data (2018–2022) show relative stabilization and modest improvement. Provincial scores improved slightly in most provinces, though Sudurpaschim declined marginally.
6. Nepali home-language students maintained higher scores than non-Nepali speakers, though the gap remained moderate. Notably, girls' performance improved (499 to 502.8) while boys declined slightly (501 to 495.89), reversing earlier gender patterns. Higher parental education remained strongly associated with better performance, especially at Bachelor's and Master's levels, and students receiving tuition support continued to achieve the highest scores.
7. At Grade 10, school-type disparities widened between 2019 and 2023, as community schools declined sharply (525 to 485.18) while institutional schools improved (491 to 522.86), reversing the earlier pattern and creating a larger institutional advantage.
8. Overall, the Nepali achievement data indicate sharp declines in the earlier assessment cycle (2012–2015), partial recovery and stabilization after 2018 at Grade 5, persistent socio-economic and geographic disparities, and an expanding school-type gap at the secondary level.

Trends in English

1. The findings from English achievement data reveal contrasting trends between Grade 5 and Grade 10, highlighting both learning declines and later recovery. In Grade 5, national mean scores dropped from 53.61 in 2012 to 46.78 in 2015, indicating an overall decline in English performance.
2. By content area, reading (50.2 to 45.7) and writing (49 to 40.2) declined sharply, grammar decreased slightly (56.5 to 53.4), while vocabulary improved (57.8 to 62.2), suggesting gains in word knowledge despite weaker literacy skills. At the cognitive level, knowledge (64 to 55.5) and comprehension (50 to 41.5) declined, whereas application (49 to 53.4) and higher ability (35 to 39.2) showed modest improvement.
3. Demographic analysis revealed widespread declines across gender, ecological zones, school location, and school type, with particularly large drops in Mountain (61.1 to 41.4) and Valley (77.5 to 57.1) regions. Urban students continued to outperform rural students, and institutional schools maintained a substantial advantage over community schools despite overall declines.
4. Parental education showed a strong positive relationship with achievement in 2012, but scores fell across all education levels by 2015, though children of more educated parents still performed better. Similarly, students whose parents worked in professional occupations such as services, teaching, and business achieved higher scores, yet declines were observed across nearly all occupational groups.
5. In contrast, Grade 10 results show clear improvement between 2019 and 2023. Proficiency levels shifted upward dramatically, with pre-basic students decreasing from 30% to 4% and advanced-level students increasing from 9% to 32%, indicating substantial overall progress.

6. Mean scores improved across all demographic groups: boys (506 to 519) and girls (496 to 512) both gained, slightly narrowing the gender gap. All caste/ethnic groups showed improvement, with Brahmin/Chhetri remaining highest but Dalit students also making notable gains (487 to 504).
7. Nepali home-language students outperformed others, though both groups improved. Institutional schools continued to score higher than community schools (556 to 562 to 488 to 503), maintaining a persistent gap.
8. Provincial data showed gains across all provinces, with Bagmati remaining highest and Karnali lowest, though all provinces improved.
9. Parental education remained strongly associated with achievement, as students whose parents held Bachelor's or Master's degrees scored the highest, and improvements were observed across nearly all education levels. Similarly, students whose parents worked in business, teaching, and services achieved higher scores, but gains were evident across most occupational categories.
10. Overall, the English data indicate a significant decline at Grade 5 between 2012 and 2015, followed by strong recovery and upward performance shifts at Grade 10 between 2019 and 2023, with persistent but slightly narrowing disparities linked to region, school type, parental background, and home language.

The students' performance in NASA tests taken by ERO has been analyzed on various variables like cognitive domain, content domain, proficiency level, districts, provinces, gender, ethnicity, home language, type of school, school location, parents' education and their occupations, student's age group, after school support, experience with bullying, availability of books, homework and feedback giving, teacher's regularity, students' attitude towards subject and teachers. In line with these variables, the background information, as in other international tests like PISA, TIMSS, and PCAP, has also been included. On the basis of the findings of qualitative analysis, we can include the following school-related and other factors that influence student achievement while designing the NASA and NARN tests.

Key Influencing Factors in Students' Achievement as Indicated by Various NASA and NARN Reports

1. NASA and NARN consistently highlight that students from remote and marginalized areas underperform due to poor infrastructure, resource shortages, and limited access to quality education. This gap has remained persistent over the years, showing only slow improvement despite targeted interventions.
2. Institutional schools generally outperform community schools due to better funding, strong accountability, and parental involvement. Trends suggest the gap between these school types is widening, signaling the need for systemic reforms in community schools.
3. Visionary and accountable head teachers foster collaboration and positive environments, directly boosting student performance. However, trends indicate that weak or politically influenced leadership continues to undermine community schools, limiting long-term gains.
4. Students with active parental guidance, structured study support, and consistent

monitoring achieve better outcomes. While involvement has increased in urban areas, rural families continue to lag behind, deepening inequities across socio-economic groups.

5. Girls' achievement remains constrained by domestic responsibilities, unsafe environments, and cultural pressures. Over time, interventions such as scholarships and mentorships have narrowed gender gaps, but barriers intensify as girls reach secondary levels.
6. Home language mismatch with school instruction continues to disadvantage ethnic and caste minorities. While mother tongue initiatives have shown positive outcomes, nationwide implementation remains uneven, leaving many students disengaged.
7. Traditional rote-based instruction limits higher-order thinking and creativity. Although professional development programs have been scaled up, NASA reports show that practical adoption of interactive pedagogy has not kept pace with policy intentions.
8. ICT integration holds strong potential for equity and engagement, yet many schools fail to use available devices effectively. The trend shows slow progress, as logistical and training barriers continue to prevent meaningful technology use.
9. Personalized feedback improves confidence and performance, especially among low achievers. However, large class sizes and heavy teaching loads mean most students receive generic group-based feedback, a trend that has shown little improvement across years.
10. Ineffective policy implementation, weak decentralization, and insufficient funding remain structural challenges. NASA trends suggest that without stronger accountability systems and timely corrective action, national achievement levels stagnate.
11. Schools with strong community participation show improved accountability and student motivation. Despite some localized success, broader trends reveal weak community-school partnerships, particularly in disadvantaged regions.
12. Stress, bullying, and lack of structured study time negatively impact achievement. Although awareness of psychosocial support is rising, NASA reports show that mental health and motivation remain overlooked factors in policy frameworks.
13. Participation in extracurriculars fosters leadership and teamwork. Trends suggest growing recognition of holistic education, yet resource-constrained schools continue to prioritize exam preparation over balanced development.
14. Access to books, electricity, and digital tools strongly correlates with academic performance. Over time, digital divides between urban and rural households have widened, reinforcing achievement gaps across socio-economic lines.
15. Both NASA and NARN emphasize inclusive curricula, teacher development, and equity-driven reforms. Trend analysis shows that while policy intent has improved, consistent implementation and localized monitoring are crucial for long-term impact.

Conclusion

Analyzing NASA results through Item Response Theory (IRT) has significant advantages over Classical Test Theory (CTT). For instance, the 2013 NASA Grade 8 report, which leaned heavily on CTT, could only present mean percentages and item–total correlations, but these outputs were tied to specific test forms and lacked comparability across cycles. As a result, policymakers could identify subgroup differences (e.g., girls to boys, urban to rural) but could not reliably track learning trends over time. By contrast, from 2015 onward, NASA adopted IRT-based equating with rotated booklets and common link items, allowing scores from different cycles to be reported on a single 500-point scale with $SD = 50$. This created a stable measurement framework, evident in the 2018 Grade 5 and 2019 and 2023 Grade 10 assessments, which produced trend data across provinces, genders, and socio-economic groups that were impossible under CTT.

The use of IRT also strengthens the policy relevance of NASA by enabling advanced reporting tools. For example, the 2020 NASA explicitly used plausible values (PVs) and weighted likelihood estimation (WLE) to estimate population-level abilities, aligning Nepal with international best practices like TIMSS and PISA. Unlike CTT, which could only provide descriptive percentages, IRT allowed the classification of students into proficiency levels with clear benchmarks—helping policymakers identify, for instance, what proportion of Grade 5 students in 2018 could solve problems requiring inferential reasoning. Furthermore, ERO’s capacity development in 2021–2022 emphasized training in IRT-based scaling and standard setting, showing institutional recognition of its policy utility. By NASA (2019 to 2023) and NARN (2020 to 2024), IRT had become fully embedded, with results linked directly to SSDP and SDG benchmarks, proving that NASA had transformed from a measurement exercise into a strategic evidence base for education reform.

Relevant school related and other factors that influence student achievement while designing NASA and NARN

1. School leadership and governance should be measured through variables such as the presence of strong versus weak head teachers, frequency of political interference, and accountability mechanisms. Leadership quality is one of the most consistent factors explaining why some community schools perform better than others despite similar resources. Capturing this dimension allows NASA/NARN to identify leadership-linked performance gaps and guide reforms in school governance.
2. Teaching and pedagogical practices can be assessed by examining the balance between lecture-based and interactive teaching, the use of activity-based methods, and reliance on rote learning. Outdated, exam-driven teaching restricts problem-solving and creativity, while interactive approaches foster deeper engagement. Including these variables ensures the tests can highlight the impact of classroom delivery on learning outcomes.
3. Teacher professional development should focus on the frequency, quality, and duration of in-service training and whether teachers apply new methods like differentiated instruction or ICT integration afterward. Many trainings remain disconnected from classroom realities, but strong, sustained professional development can transform student learning. Testing against this variable helps explain differences in teacher effectiveness.

4. The availability of digital resources, lab equipment, and opportunities for experiential or project-based learning can track the use of ICT and alternative learning tools. Schools with meaningful ICT use often show higher inclusivity and engagement, while resource-poor schools' lag. Measuring this factor provides evidence of how digital integration affects student achievement.
5. School climate and safety are best captured through student experiences with bullying, overcrowding, and perceived psychological safety. Feedback mechanisms, positive teacher-student relationships, and opportunities for participation also reflect school climate. Factoring this into assessments allows NASA/NARN to measure how safe and supportive environments contribute to learning.
6. Household responsibilities and time use should include data on hours spent in domestic chores or income-generating work, especially among girls. Limited study time directly weakens learning, regardless of classroom quality. Capturing this variable highlights how out-of-school responsibilities undermine achievement.
7. Parental involvement and support can be reflected in structured home routines, monitoring of homework, and communication between parents and teachers. Children from homes with strong educational support usually perform better across subjects. Including this dimension clarifies the extent to which family environments shape test outcomes.
8. Socio-cultural barriers for girls require attention to early marriage, menstruation-related absenteeism, and domestic duties. These barriers cause many girls to drop out before completing secondary education. Measuring such influences in NASA/NARN makes inequities visible and provides evidence for targeted interventions.
9. Local education agency effectiveness should be assessed by how actively municipalities and provinces distribute resources, organize training, and monitor schools. Strong agencies reduce inequality between rural and urban schools, while weaker ones perpetuate gaps. Capturing this factor helps link systemic support with student outcomes.
10. Equity in resource allocation can be measured through differences in textbooks, libraries, labs, and ICT availability across school types and locations. Institutional schools generally have stronger infrastructure compared to community schools, while rural areas lag behind urban centers. Testing this variable reveals how structural inequalities shape performance differences.
11. Curriculum relevance and inclusivity should examine whether learning materials reflect local languages, cultural contexts, and diverse learning needs. A contextually relevant curriculum increases student engagement and reduces marginalization. Including this dimension helps NASA/NARN tests show whether students are failing due to systemic misalignment rather than a lack of ability.
12. Community engagement can be assessed through the activity of School Management Committees (SMCs), Parent-Teacher Associations (PTAs), and community contributions in oversight or resources. When communities take ownership, accountability, and student outcomes improve visibly. Capturing this factor ensures NASA/NARN accounts for the role of grassroots participation in education quality.

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Annexes

Annex I: Research Guidelines

The appendix consists of interviews, FGDs, and classroom observation guidelines for the participants.

Guidelines for Individual Interview with Head Teachers

S.N.	Guiding Questions	Participants' Responses
1	Why are the students adaptive to tasks related to memorization and recall, but are not effective in skills requiring application or ability at a higher cognitive level?	
2	What factors cause achievement differences across schools?	
3	How do teaching methodologies in your school contribute to students solving application-level and higher-order thinking questions?	
4	How does your school integrate technology to enhance student learning outcomes?	
5	Why is the learning achievement of institutional schools higher than that of community schools?	
6	What initiatives have been taken in your school to bridge the gap between institutional and community schools in terms of learning achievement?	
7	How do school-wide assessment practices influence student learning achievement, and what improvements are needed?	
8	What are the key challenges in implementing student-centered learning approaches, and how can they be addressed?	
9	What roles do you have to play as an educational leader in shaping student success and fostering a conducive learning environment?	

Guidelines for Individual Interview with the School Management Committee Members

SN.	Guiding Questions	Participants' Responses
1	How does the education level of parents affect students' achievement and learning support at home?	
2	In what ways do parents' occupations (e.g., farming, service jobs, foreign employment) influence their children's achievement?	
3	What support structures are in place to ensure all students, regardless of socioeconomic background, have access to necessary learning materials?	
4	In what ways can the school collaborate with parents to enhance student learning outside the classroom?	
5	How do parental involvement programs contribute to student academic success?	
6	What support structures are there in place to ensure all students, regardless of socioeconomic background, have access to necessary learning materials?	
7	In what ways can the school collaborate with parents to enhance student learning outside the classroom?	

Guidelines for an Individual Interview with the Local Education Officer

S.N.	Guiding Questions	Participants' Responses
1	Why is there a strong difference in achievement between students, schools, districts and development regions/ provinces?	
2	What measures have been adopted to reduce the differences?	
3	Why is the low economic and social background related to lower student learning achievement?	
4	Is there anything else you would like to share regarding challenges and successes in improving student achievement?	
5	What data-driven approaches are being used to assess and address learning disparities between different groups?	
6	How does language diversity impact students' performance in standardized assessments, and what measures can be taken to support multilingual learners?	
7	What policies or interventions have been most effective in reducing achievement gaps across provinces or ecological zones?	
8	What future strategies are planned to improve overall student learning outcomes and ensure educational equity?	

Guidelines for Focus Group Discussion with Teachers

SN.	Guiding Questions	Participants' Responses
1	Do you notice any differences in learning achievement between boys and girls? If yes, what might be the reasons?	
2	How do students from different ethnic groups perform in your class? Are there any noticeable disparities?	
3	Do your students work after school hours? If yes, how does it impact their study time and achievement?	
4	How do home resources (books, electricity, internet, furniture) affect students' study habits?	
5	How do students respond to homework and feedback? Does it help improve their achievement?	
6	What strategies have been effective in engaging students with lower academic performance?	
7	How does peer learning or group activities contribute to student achievement?	
8	What challenges do you face in providing personalized feedback to students, and how can they be improved?	
9	What instructional strategies have been most effective in improving student engagement and comprehension across different ability levels?	
10	How do you tailor your teaching methods to address gender disparities in learning achievement?	
11	What classroom-based interventions have helped students from different ethnic backgrounds achieve better results?	
12	How does student participation in homework and class discussions correlate with their academic improvement?	
13	How do differentiated instruction techniques help address students with varied learning abilities?	

Guidelines for Focused Group Discussion with Students

SN.	Guiding Questions	Participants' Responses
1	Do you notice any differences in learning achievement between boys and girls? If yes, what might be the reasons?	
2	Do you work after school hours? If yes, how does it impact your study time and achievement?	
3	Are textbooks and learning materials readily available to all students in your school?	
4	Do you have access to learning materials like calculators, stationery, or mobile devices?	
5	What kind of learning support do you receive at home, and how does it impact your academic performance?	
6	How do digital learning tools or access to resources such as books and stationery affect your ability to grasp concepts?	
7	What challenges do you face when completing assignments, and what support would help you overcome them?	
8	Have you experienced bullying, and if so, how has it affected your learning environment and motivation? Why is the learning achievement of girls at lower level higher than the boys, but with their age growth, their achievement declines?	
9	What learning methods work best for you, and how do you think schools can better support your individual learning style?	
10	How do extracurricular activities impact your academic performance and motivation?	
11	What difficulties do you face while preparing for exams, and what kind of academic support would benefit you?	
12	How do teachers' feedback and encouragement influence your learning achievements?	

Guidelines for Focused Group Discussion with Parents

SN.	Guiding Questions	Participants' Responses
1	How does your level of education affect your children's achievement and learning support at home?	
2	In what ways does your occupation (e.g., farming, service jobs, foreign employment) influence your children's achievement?	
3	Do your students work after school hours? If yes, how does it impact their study time and achievement?	
4	Do you observe any differences in academic achievement among overage or underage students in the same grade?	
5	How do home resources (books, electricity, internet, furniture) affect your children's study habits?	
6	Do students have access to learning materials like calculators, stationery, or mobile devices?	
7	Have you observed bullying in school? If yes, how does it affect students' emotional well-being and academic achievement?	
8	Are textbooks and learning materials readily available to all students in this school?	
9	What kind of academic support do your children receive at home?	
10	How do students respond to homework and feedback? Does it help improve their achievement?	
11	How are you involved in school activities?	
12	Are you satisfied with the performance of this school?	
13	How do you expect to be involved in school activities by the school management?	

Guidelines for Individual Interview with the Chief of EDCU

SN.	Guiding Questions	Participants' Responses
1	There is a strong difference between students, schools and district, as well as the provinces. As the coordinator of district education, how have you taken it?	
2	Why is the learning achievement of institutional schools higher than that of community schools?	
3	Why has the situation not been changed, though there are policies and plans to reduce the gap?	
4	With the inception of NASA, 9/10 national-level achievement assessments have been taken, and the results are almost the same, and in some cases, the trend pattern seems to be declining. What's the reason behind it?	
5	What measures have been adopted to improve the educational achievement level in this district?	
6	Despite government policies aimed at improving achievement in schools, several challenges continue to hinder progress. What are these challenges and how can we face them effectively?	

Guidelines for the Classroom Observation

- Teaching preparation
- Devising various lesson objectives and activities
- Designing meaningful learning situations
- Providing clear instructions
- Involving students in learning activities
- Utilizing appropriate learning strategies
- Summarizing the main points
- Enhancing learning interest and motivation for classroom participation
- Checking students' understanding and providing appropriate feedback
- Creating a conducive learning environment
- Setting rules and procedures
- Ensuring students' involvement in learning activities
- Dealing with discipline problems
- Making learning relevant and meaningful
- Responding to students with a positive attitude
- Listening to the students intently
- Treating students as human beings

List of Schools Visited

1. Shree Janajagriti Secondary School, Solukhumbu
2. Shree White Hill Secondary School, Solukhumbu
3. Shree Deurali Secondary School, Bardibash, Mahottari
4. Global Academy School Bardibash, Mahottari
5. Shree Jyoti Secondary School, Shynja
6. Shree Tribhuvan Adarsha Secondary School Shyanja
7. Shree Arunima Secondary School, Dapcha, Bhaktapur
8. Shree Candid Career Secondary school, Sirutar, Bhaktapur
9. Sodasha Devi Secondary School, Mangalsain, Achham
10. Dip Shika Boarding School, Mangalsain, Achham
11. Jana Namuna Secondary School, Surkhet
12. Nobel Academy School, Mulpapani, Surkhet
13. British Gorkha International Boarding Shool, Ghorahi, Dang
14. Padmodaya Adarsha Namuna Secondary Schoopl, Dang

Annex – II A Sample Copy of Transcriptions

FGD, Interview, and Class Observation Report

Class observation 1

Joti Secondary School, Putalibazar, Syanja

Class: 9

Subject: Nepali

1. Class preparation was poor.
2. The topic was drama in the Nepali subject, but the teacher request to student for read the entire period.
3. All students were reading continuously.
4. The teacher instructs them to read them clearly.
5. Involved in reading.
6. There was no teaching strategy used in the classroom.
7. No summarization.
8. Motivation is used to read the given topic.
9. No evaluation and no feedback.
10. Did not create a learning environment.
11. The setting rule is not fixed, and they can use any bench as they like.
12. There were no effective learning activities.
13. There was no discussion between the teacher and student on subject matter.
14. The classroom was not relevant.
15. Students followed the teacher's instructions to read.
16. There was no intent on the part of the students.
17. Could not measure the human being in the classroom.

At the end of the class, the teacher said, 'I will discuss tomorrow on this topic about the role of character in this drama, and the next day I will lecture on the meaning and message of this topic'.

Class Observation 2

Trivhuvan Adarsha Secondary School, Putalibazar, Syanja

Class: 9

Subject: English

1. The teacher prepared the class notes and annual plan in his diary.
2. Three specific objectives were prepared on the basis of the subject matter.
3. Learning situation was beneficial, and the activities related to the lesson.
4. The teacher conducts the discussion on the subject matter by showing the picture given in the book. But he did not use materials.
5. Students were involved in class discussion very effectively.
6. The teacher has asked the question to be discussed in the class.
7. The teacher made four points as a summary of the lesson.
8. The teacher used the headset microphone but did not use any ICT tools in the classroom.
9. The teacher has given 5 minutes to read 5 minute and asked the question as a class test.
10. Learning environment was nice, which was created by the teacher.
11. They used their bench on a first-come, first-served basis.
12. The teacher provided equal opportunity to learn in the classroom without any discrimination.
13. Class was centered on the development of discipline through the subject matter.
14. Learning was very relevant to their daily life.
15. The teacher tried to develop a positive attitude in the students through the subject matter.
16. Students were intently involved in the classroom with the teacher.
17. Class was very relevant and effective for the students to be human being in the students.

Interview -1 EDCU Coordinator Syangja

1. Development and infrastructure are also the reasons for the different results. Parents' awareness is not sufficient, and there is poverty. Sending your child to school is a big deal. There is no focus on quality, but little awareness has developed in a district like ours. In some communities, they go to school only when they have free time, the main reason being a lack of it. Connecting children with income is the main reason for this. And another reason is the bad culture in society.
2. It is found that the principal has a role in the improvement of the quality of the school as a whole; no matter how many model schools there are in the Syangja district, the change has come because of the competent principal; it is not only in our district. When the principal is active, good management leads to school improvement. Instead of teaching, the head teacher should lead the school, and if he can move forward, the school will improve.
3. Looking at these allegations NASA's results show little improvement in science results. The result of mathematics is decreasing. This is confirmed by the national average scores. Why this is happening, why to study which subject, and how it will help to make the future, cannot be understood. Another thing is that there is no practice on how to solve the application-level and higher-level questions, the result is decreasing. In the same way, it is necessary to change the perception of the students that only passing is enough.
4. Making the class effective by preparing an annual plan, continuing to practice the questions according to the pattern of the questions, continuous monitoring and training should be done in the school, support in the implementation of the new curriculum, the local government should be activated, and parents should be made aware.
5. The school has faced many challenges to be successful. The main problem is the financial aspect. The sample given by the school is the same in all schools. It should be spent under the same heading that comes under it. Community schools have to collect fees from students. The work that is against the law is also an administrative challenge. The teachers who were recently appointed are weak; the older teachers are weak. They have not been able to perform, society has not understood its jurisdiction, and the school has faced problems.
6. Providing equity-based financial support to schools, providing training from subject experts, improving teaching methods and evaluation processes, there is a plan to support schools with the help of the local government and social organizations.

Interview -2 HT Joti SS Syanja

1. There is no uniformity in the syllabus and textbooks. Most of the teachers are rote teachers. They teach on that basis. Learning means learning and memorizing. As a result, higher-level questions have not been solved
2. The main reason for this is the school environment, the teacher's performance is another main reason, and the awareness of the parents and the individual differences of the students are also factors.
3. We emphasize project work. We give free extra classes to weak students. Just understanding the question prompts you to write the answer
4. We use technology. Our school has enough computers. The Internet is good. A projector can be used in the classroom. Various videos and other topics can be shown in the classroom through the projector.
5. The reason our school is better than others is that our teachers are competent because of our planning and management. One of the reasons for school reform is the facilities provided to teachers.
6. I also go to other schools. Public schools are above us in terms of physical infrastructure. Like the library laboratory school building is attractive, however, it is not used; if we had such a facility, we could have provided much higher quality.
7. Examination is the way to improve the quality of education. Internal examinations are highly beneficial for students, so we conduct them regularly.
8. We teach differently from other schools. We take tests continuously. We re-test weak students. The more tests we take, the more students seem to improve.
9. It is said that learning should be student-centered; we are doing the same, but it is not that easy. For this to happen, students should also be active. Parents should also be active in this. But such a situation is not ready.
10. I work 12 hours a day at school. I have fully supported the teaching staff. I have completely improved the infrastructure of the school. Similarly, I have been connecting with parents and taking their suggestions.

Interview -3 HT Tribhuvan Adarsha Secondary School, Syanja

1. Students' abilities may not be the same, so the same achievement cannot be expected. Children's family situation is weak. Our teaching system is also weak. Higher-level questions, like application level and analysis level, are not taught to solve because of the rote and memorization method.
2. Not all our parents are good; children lack active learning. There is no learning support from parents to children. Resources and human resources are also lacking. Education policy is also not appropriate.
3. Yesterday we used to study hard, but today it is not like that; now we are giving inspiration to the students. We give priority to project work. A student-centered approach is used.
4. We also have a smart board. There is also a computer. There is also a projector. Teachers are teaching lessons related to their subject with ICT. Every teacher who prefers local content is given a microphone set.
5. My plan is to end the distinction between public and private schools. I plan to implement it fully. We have a process of making homework compulsory for students and providing continuous feedback. Students are divided into groups based on their ability, and group discussions, and teaching is done
6. I have been to many schools in this municipality. The principal of the school devotes full-time to the school. That school is good. Those who do not spend enough time in school are not improving in school
7. Exams are a means of supporting students' learning. Students' achievements should be analyzed, and re-exams should be conducted. We conduct four examinations a year. This has improved student achievement.
8. We have improved the examination; we do not admit students selectively. We have supported the capacity development of teachers and have started teaching through English
9. Student-centered teaching is an essential method. It is not easy in a school like ours. It is becoming difficult to implement as the number of students is high and the manpower is low.
10. I have been working as a head teacher in this school for the last 10 years. I have brought three buses into operation at the school. I have prepared a computer lab. The plan of the technical model school is also being implemented in the school.

Interview -4 LEO

1. NASA has shown different results. The results differed according to geography. The situation is the same in our municipality. There is no regularity of students in the school. There is a lack of resources. Access to technology is poor. Therefore, the results are varied.
2. We are active so that there is no big gap in achievement in this municipality; manpower mobilization, awareness, and resources are managed.
3. We are committed to improving the weaknesses, adding service facilities to the school, making use of technology, raising awareness among parents, etc.
4. A plan has been prepared to create awareness and income-earning opportunities for parents who are backward in poor economic and social conditions.
5. Law alone cannot change society; its implementation becomes a major issue, which is challenging to work with.
6. Plans have been introduced, such as providing opportunities for higher education, giving opportunities for income generation, and honoring children with poor economic conditions on the basis of achievement. A plan of assistance has been prepared by dividing the weaker sections.
7. We have a local curriculum. No mother tongue students. It is not that the influence of the mother tongue in the classroom is weakened
8. Multilingualism has not had an effect on learning, so it is not the reason for the drop in results
9. We are in the first phase of the education plan. We are engaged in making education equitable. Distribution of facilities is done on the basis of need.
10. The local government is conscious of improving the quality of education. Our role in improving the quality of education is in implementation. Our plan is to prioritize equity and improve overall outcomes.

FGD-1 Parents Joti S School

Parental education does not seem to have a significant effect on children's learning. Learning depends on the child's ability. But literate parents can support learning and create an environment that can inspire future planning. When parents are educated, it is easier for children to learn

1. Parental occupation also does not seem to have a significant impact on a child's learning. Consciousness has also come to the child. It seems that my parents have suffered because they did not study, and I have come to the realization that I should study
2. Children help at home. Doing housework does not seem to affect learning achievement. We parents living in a rental room do not have much work to do. They are made to do cleaning work at home. It does not seem to affect learning
3. It is better to teach according to the child's age. If this happens, learning achievement may decrease.
4. Our children have access to books, mobile computers, the internet, etc. And they are using it.
5. Children's required materials like Calculator books, pens, etc., are provided as per requirement. It would have been better if its use had been sufficient. Children do not have the habit of showing pride. They don't behave like grieving and grunting as they say now. They usually get angry. But they don't give pain
6. We have bought the books prescribed by the school, and there is no shortage of books for the children.
7. All the help we could get the children out of the way. They have come when called by the school and have created a suitable study environment at home.
8. Homework is better when it is regular. Homework improves student achievement. Students benefit from consistent homework.
9. We have attended the time called to school
10. We are satisfied with the education or results provided by the school
11. It would be easier for us if the school management assigns us our role to participate in the formulation of policies and rules that call us from time to time.

FGD -2 Parents Tribhuvan Adarsha S School

1. It is easier to teach a child when we are literate. Even if the content cannot be explained, the child can be helped. Learning can be motivated. A child can be disciplined.
2. Parents' occupation influences the child's learning and helps to create a learning environment at home. It depends on the child's ability to score highly. A parent's occupation alone does not necessarily have a major impact on learning
3. Our children do not work at home, but they clean the house and help us in their free time. This does not seem to affect their studies
4. It is not good to have a child's age too much or too little according to the class, it seems to affect the learning achievement.
5. Materials like books, the internet, and mobile devices are available for our children to read at home. It has also been used.
6. Home reading materials are also available. A reading environment has also been created.
7. Children do not have the habit of boasting. They have normal tantrums but do not behave in a problematic manner.
8. The school has distributed the textbooks on time. Other content provided by us
9. At home, we create a suitable environment for children to read, so I have made a reading room. I have set the table. I have also kept the internet.
10. Giving homework is good. It teaches diligence at home and improves academic performance
11. When we are called by the school, we complain, but nothing happens
12. We are satisfied with the school and the children's achievements.
13. The school needs to continue to improve. It would be better if our child is not only exposed to book knowledge but also participates in other activities.

Interview SMC Jyoti School

1. Manner influences learning more than the ability of parents. Better to be more educated. Educated families can support children by understanding their achievements. This opportunity does not apply to others. But recently, there has been some improvement.
2. Occupation also affects the achievement of students, where we study the children of employees, military police, and laborers. But this depends on the child's ability.
3. Socioeconomic factors can affect children. Such a situation has also been seen in the classroom.
4. Children should be taught good manners at home; they are losing good manners. This has an impact on learning. We have told this to the parents as well
5. We hold regular parent meetings. We discuss how students can be taught.
6. The more parents can be made aware, the more the child's learning can be improved. Schools should cooperate with parents in such work.
7. The relationship between children and parents should be very harmonious; we have given this to parents as well.
8. We have given the message that children are your future. We have given the message to the parents that if children are taught to love and discipline, their learning will improve.

SMC Tribhuvan Adarsha School

1. Parental education influences learning. Their work is also affected by their profession. With the exception, this affects learning achievement.
2. Parents' occupation also affects students' academic achievement. In this school, only the teacher's children are always first and second.
3. The influence of society is also seen in the school. There is a tradition that children of big families should study. They have all the resources available.
4. Some students' deficits extend to school. We have not been able to fill this gap.
5. We have conducted a parent awareness program. The Locality Education Committee has been formed. As a result, parental awareness has been promoted.
6. Children need to be accompanied by parents, not just by sending them to school. That is why we have planned to assign the responsibility to parents.
7. Help should be given in sending children to school, creating a learning environment, and keeping the house quiet.
8. We have reminded the parents regularly by phone or by visiting their homes.

STD FGD Joti S School

1. There is no difference between boys and girls in learning achievement. Such a difference depends on our hard work.
2. At home, we do normal work. Helping parents, cooking, washing, etc., such work does not affect the learning achievement
3. Reading materials are enough for us at home
4. We have enough internet, mobile copy pens, and other materials. It has helped in learning. We have a good study environment at home, and the family has supported us. He teaches without knowing and inspires to read
5. At home, we use the internet. Also uses Google and GPT, which helps to learn unknown things.
6. Sometimes it's hard when we don't study at home, so we do the homework ourselves. We have also taken help from the teachers in the project work
7. We are never proud; it is not good. We do not show pride at home or school.
8. Children's learning does not differ because of age. Reading can be difficult if you are in a large class at a young age.
9. Teachers teach well, but we are also weak in some subjects. It seems that our efforts are not enough
10. We play sports like cricket and volleyball, and also participate in other extracurricular activities. It has helped our learning.
11. We are not afraid of the exam; if we prepare well, we can write the exam easily. We prepare well for exams. That's why the test seems easy to us
12. Our sirs help us well, give us support, which makes it easy for us to improve our weaknesses, and our self-strength increases.

STD FGD Tri Aa School

1. The difference in learning achievement is due to working and a lack of resources. But learning achievement is not different between boys and girls. Learning, if any, depends on the environment and ability.
2. 2 We go home and do cooking, laundry, cleaning, etc. We also help in the fields so that learning is not hindered
3. Our school and home have sufficient textbooks and other materials. Which has helped in learning
4. At home, we get help from our parents to help us learn.
5. There is only a mobile at home. But there is also an internet facility. From this, we have learned by looking for unknown content, and it has helped us to read.
6. Completing homework and project work is not much of a problem. Sometimes, if there is a problem, we take the help of the internet and teachers.
7. We are not in the habit of boasting. We did not hurt our parents. Sometimes we get sad when our demands are not met
8. The difference in learning between boys and girls depends on their hard work. But going to a big class at a young age can be difficult
9. It is better to read using electronic material after discussion. It is good to read again and again on a subject we do not know.
10. We play different games. We participate in activities such as attendance and answer races. It increases our fitness. And it also helps in learning
11. We work hard in exams. Prepares the necessary material for himself so that it becomes easy and there is no difficulty in the exam
12. The teacher gives us feedback, and we follow it, which improves our learning.

FGD Tec Joti S School

1. Differences in students' learning achievement are due to home environment, individual behavior, parents' motivation, social environment, etc. Caste, religion, and class do not play a role in this.
2. A determinant of learning achievement is the student's effort. Not only to read, but also to teach how to read
3. In our school, there are students from different castes and languages , but there is no difference in learning.
4. Our students also do normal work at home. It does not affect learning
5. Our students have enough learning materials.
6. We give homework to the students, and most of them complete the homework. But some say they don't, they are also weak in class. Students who complete their homework also have satisfactory performance.
7. Conducting additional classes, making participants participate in discussions, dividing groups, adding learning materials, and encouraging parents to help as well
8. Group teaching is an effective way of learning by keeping students of the same level in a group, and the teacher gives full support.
9. It is not that difficult to give personal support. But they don't follow it. This is the biggest problem.
10. A method has been adopted to make the students active in the classroom
11. In our class, there is no big difference in learning achievement between boys and girls, but girls have more passion for learning, so their achievement is slightly higher.
12. We do not discriminate against children in any way and are held accountable for equal participation in the classroom. There is little difference in extracurricular activities.
13. The higher the correlation between homework and academic achievement, the higher the academic achievement.
14. A student-centered approach is the best approach to adopt in schools. We maximize its use. That is why our school has been successful.

FGD TEC Tri AD School

1. All our teachers' children study in this school. Most of the time, our children are the ones who are successful in the class, and the main reason is the psychology and learning environment.
2. The student who works harder is the more successful the student is when the child is more regular in daily activities.
3. Learning achievement varies by social group. But we behave the same, and even if he has not achieved satisfactory results in his studies, it is important to raise awareness among the parents
4. Our children help with household chores. Almost all are functional. But their learning has not been greatly affected. In terms of doing income-generating work, the achievement is poor.
5. There are materials that support children's learning, but their use has not been effective. There is no culture of reading books and using the Internet
6. We give regular homework. Only a few students do their own homework, and the rest copy it from their friends. Some do not do homework. It should be regularized. We provide continuous support to students.
7. Active in the classroom to encourage weak children to do homework should be investigated and supported.
8. We encourage students to read in groups. They learn by themselves in pairs or groups. It has a good effect on learning.
9. We take special initiatives to improve individual weaknesses in students. For example, children who never do homework in class and do not pay attention when they are taught are given individual support.
10. Making the class technology-friendly, making the parents aware, we teachers should also work harder and make the class more active
11. There is no gender discrimination in our school. We are very aware of this. There is no gender difference in achievement in our school.
12. Our community is diverse. The situation is the same in schools. Children of the Brahmin Chhetri community are more conscious of learning. The advantage of reading other communities is a lack of awareness towards reservations and the future
13. Students do homework, but students who give importance to homework are more active in the classroom. Classwork needs to be made more active.
14. In the classroom, students should now be taught using new technologies. If we can make the class technology-friendly and use new resources, the class will definitely be more effective.

Appendix – III : Sample of Consent Sheet

Consent Sheet

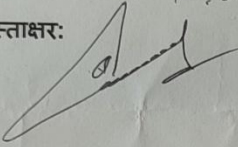
Trends in Student Achievement Based on Results from the National Assessment of Student Achievement in Nepal

शिक्षा मन्त्रालय अन्तर्गतको सैक्षिक गुणस्तर परिक्षण केन्द्र बाट संचालित Trends in Student Achievement Based on Results from the National Assessment of Student Achievement in Nepal शिर्षकको अनुसन्धानमा आवश्यक तथ्यांक उपलब्ध गराउन म /हामी मन्जुर छु /छौ ।

नाम: विमलकुमारी खड्का डोर्गी

मिति : २०८२/०२/१९

समय: विहान १०:००

हस्ताक्षर: 

Appendix – IV: Sample of FGD Minutes

लक्षित समूह छलफल

दिनांक २०८२ साल जेष्ठ ...१५... गतेका दिन White Hill secondary school मा शिक्षा मन्त्रालय

अन्तर्गतको सैक्षिक गुणस्तर परिक्षण केन्द्र बाट संचालित Trends in Student Achievement Based on Results from the National Assessment of Student Achievement in Nepal शिर्षकको अनुसन्धानमा तपसिल बमोजिमका सहभागीहरुको उपस्थितिमा लक्षित समूह छलफल गरि आवश्यक तथ्यांक संकलन गरियो।

उपस्थिति

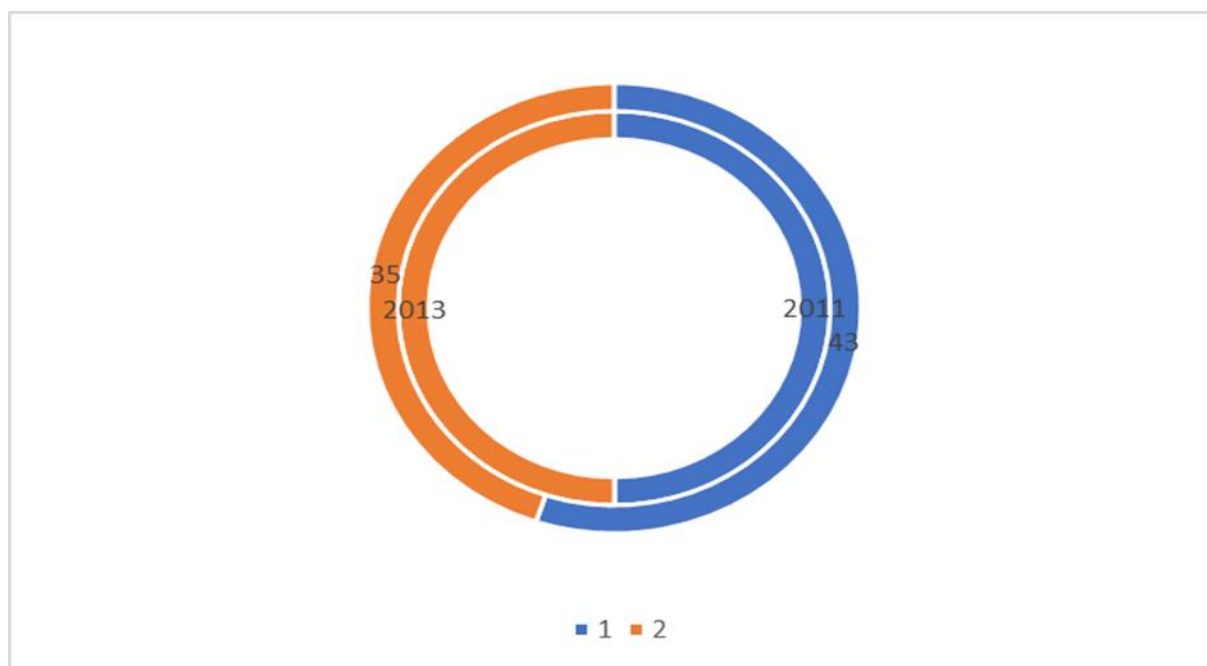
SN.	Name	Signs
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2	सपना प्रधान	
3	दिलीप गुरुङ	
4	Sanjay Bhattarai	
5	रत्नजल सुन्नाल	
6	Anupama Shrestha	
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सहचिराम खोला

अनुसन्धान कर्ताको हस्ताक्षर

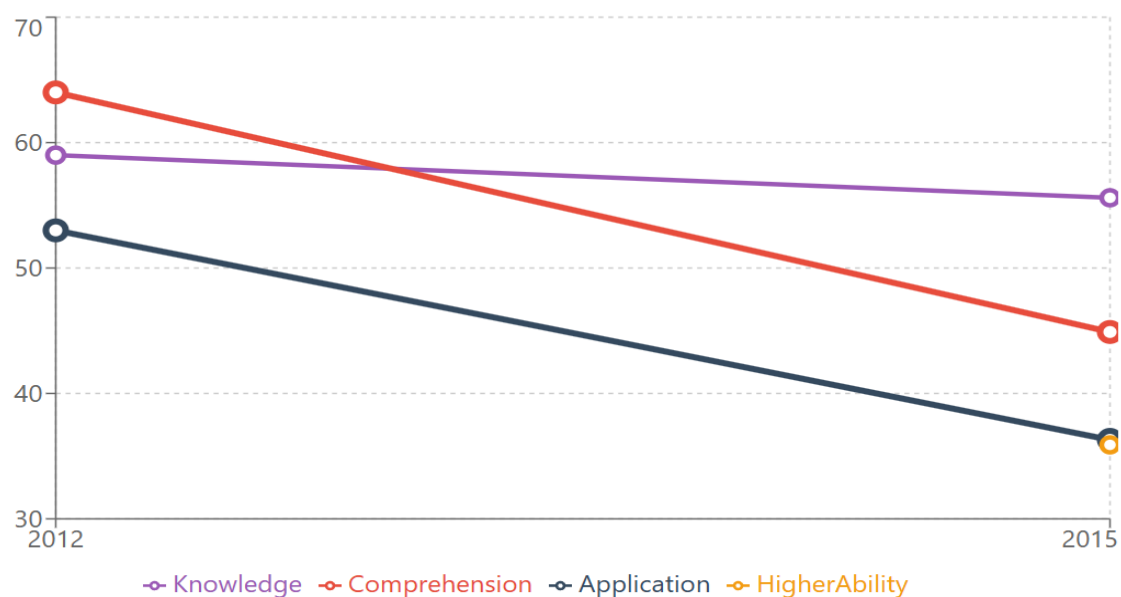
Appendix – V : Sample Trends in Line Graph

Trends in mathematics Grade 8 (2011-2013)



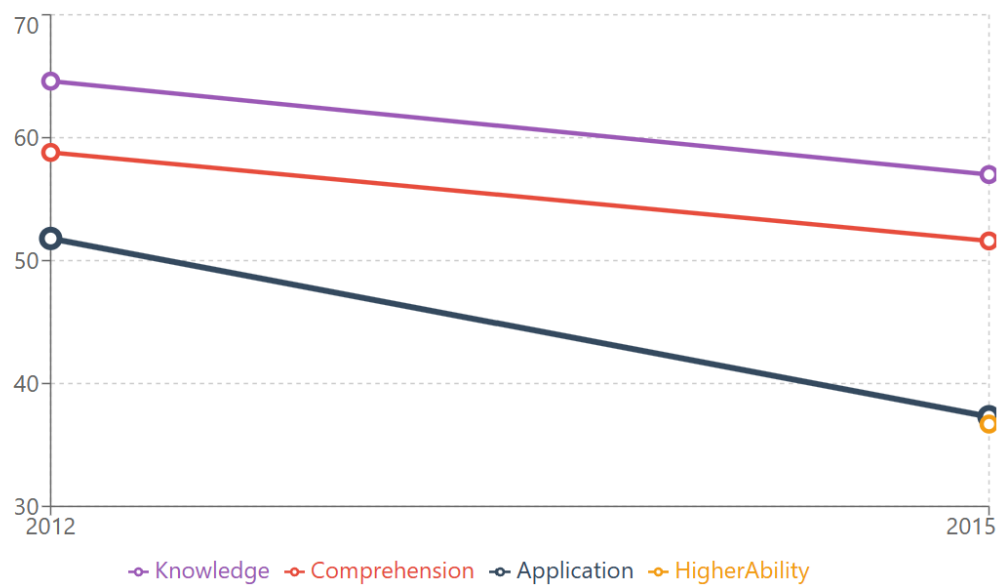
Grade 3: Cognitive Level Performance Trends (2012-2015)

Severe declines in higher-order thinking skills, particularly Comprehension and Application



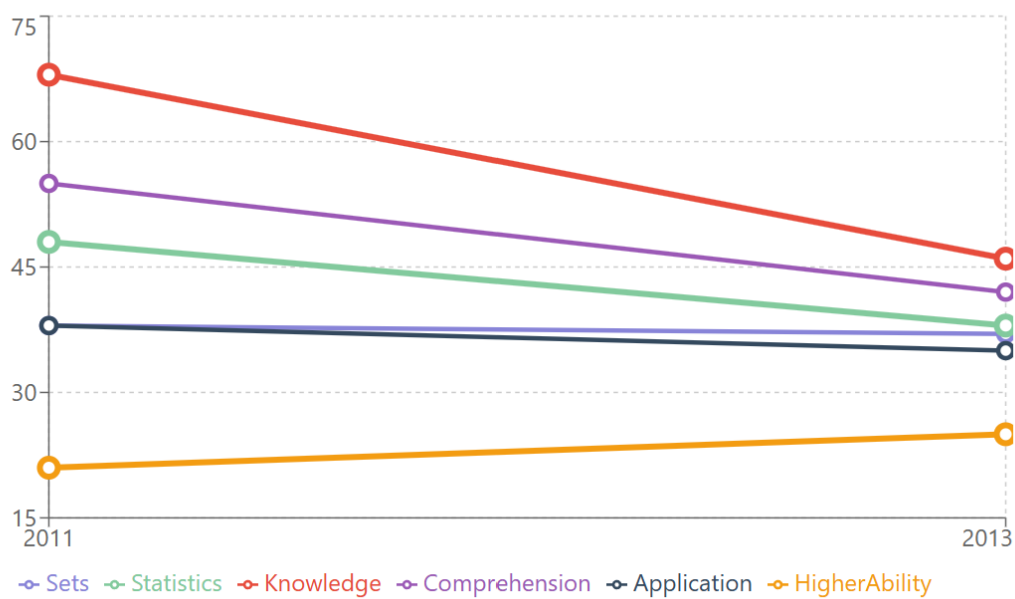
Grade 5: Cognitive Level Performance Trends (2012-2015)

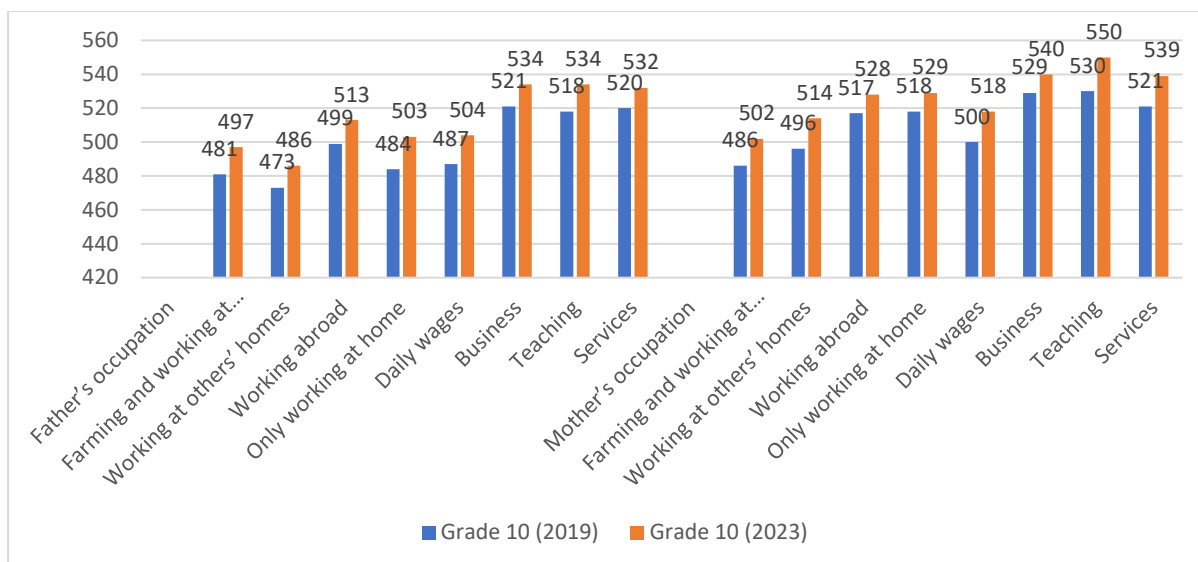
Application skills show the most concerning decline across all cognitive levels



Grade 8: Cognitive Level Performance Trends (2011-2013)

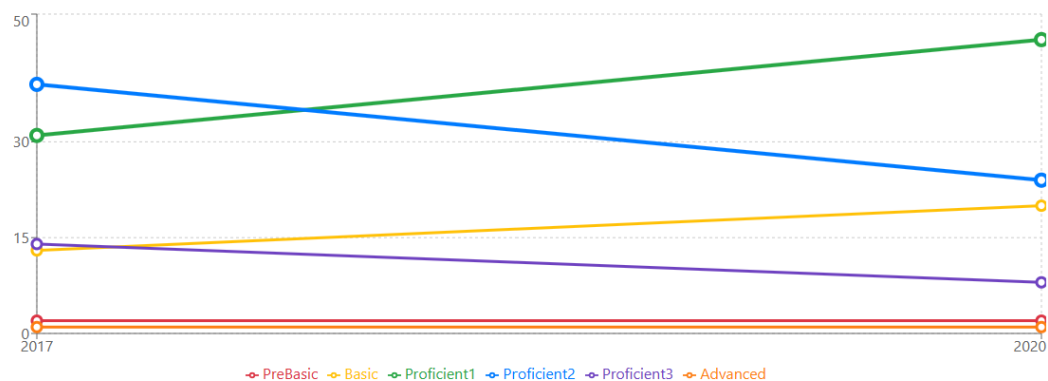
Mixed results with Higher Ability skills improving while others declined





Grade 8: Proficiency Level Distribution Trends (2017-2020)

Shift toward middle proficiency levels with reduced advanced performance



Grade 8 Proficiency Shifts:

- Proficient Level 1: +15% increase (31%→46%)
- Proficient Level 2: -15% decrease (39%→24%)
- Basic Level: +7% increase (13%→20%)
- Students moving toward middle proficiency levels

