



Large Scale Assessment (LSA)

Grade 5



September 2021

Developed with the support
of the Third Punjab Education
Sector Project (PESP III) Technical
Assistance team of Cambridge
Education, **Mott MacDonald**



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List of Abbreviations/ Acronyms

ALP	Accelerated Learning Programme
APF	Assessment Policy Framework
AV	Audio-Visual
B.A.	Bachelor of Arts
B Sc	Bachelor of Sciences
COVID-19	Corona Virus Disease 2019
CPD	Continuous Professional Development
CRQ	Constructed Response Question
DEAs	District Education Authorities
DLI	Disbursement Linked Indicator
ECE	Early Childhood Education
ERQ	Extended Response Question
HED	Higher Education Department
HCF	Highest Common Factor
IT	Information Technology
ITSP	Innovative Teacher Support Package
LCM	Least Common Multiple
LSA	Large Scale Assessment
M.A.	Master of Arts
MCQ	Multiple Choice Question
MSc	Master of Sciences
NFBE	Non-Formal Basic Education
NSB	Non-Salary Budget
PCTB	Punjab Curriculum and Textbook Board
PEC	Punjab Examination Commission
PEF	Punjab Education Foundation
PEIMA	Punjab Education Initiative Management Authority
PESP III	Punjab Education Sector Project III
PMIU	Programme Monitoring and Implementation Unit
PPP	Public Private Partnership
PRP	Pakistan Reading Project
PTM	Parent Teacher Meeting
RRQ	Restricted Response Question
QAED	Quaid-e-Azam Academy for Educational Development
SBA	School Based Assessment
SED	School Education Department
SIS	School Information System
SLO	Student Learning Outcome
SNC	Single National Curriculum
SOPs	Standard Operating Procedures
SRP	Sindh Reading Programme
STR	Student-Teacher Ratio
TA	Technical Assistance
TFM	Teacher Forum Meeting
ToS	Table of Specification
WB	World Bank
WPM	Word per Minute

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Message from the Minister Education

We introduced the new assessment regime under the Assessment Policy Framework (APF) in 2020. The APF is aligned to our Government's strategic vision for education, given in the document New Deal for Education 2018-23. It is part of the key education reforms we have introduced in the province for improved student learning outcomes since 2019.

Under the APF, we have implemented both school-based assessments for school and classroom level improvements and large-scale assessments for strengthening of the overall system.

It is my pleasure to announce that we have successfully launched the Large-scale Assessment for students of Grade 5 in June 2021. The Punjab Large-scale Assessment (LSA) for Grade 5 is the first provincial assessment of its kind under the APF. The assessment is curriculum-based and provides results of students in four subjects: Mathematics, English, Science and Urdu. For the first time under the assessment, data has been collected on external influencing factors affecting education quality of students. I am certain this report will provide us the evidence we need to make critical decisions for improving our education system in Punjab.

I encourage the School Education Department (SED) and its attached provincial departments; Punjab Curriculum and Textbook Board (PCTB), Quaid-e-Azam Academy for Educational Development (QAED), the Programme Monitoring and Implementation Unit (PMIU) and public-private partners of Punjab Education Foundation (PEF) and Punjab Education and Initiative Management Authority (PEIMA) to study the findings of this assessment and work together on new interventions to improve student learning outcomes where most needed.

Results of the LSA can also be used to inform critical stakeholders such as parents, students, civil society and the thirty-six District Education Authorities (DEAs) about the quality of education and factors affecting students' progress.

The contributions of the Punjab Examination Commission (PEC) and its technical partner, the Third Punjab Education Sector Project (PESP III) Technical Assistance team of Cambridge Education, Mott MacDonald are greatly appreciated for development of this report and execution of the LSA in Punjab.

I hope that this report and the initiation of LSA's in Punjab will be both useful and valuable for us in our continued efforts to strengthen education delivery in the province.

Dr Murad Rass

Minister Education

Message from the Chairperson, PEC

Under the umbrella of the Assessment Policy Framework (APF), the Large Scale Assessment (LSA) for Grade 5 is a sample-based extensive activity, conducted by the Punjab Examination Commission (PEC) in all 36 districts of Punjab. The main purpose of the assessment is to identify system-level diagnosis of performance at various levels (from student and school up to the district and provincial levels) and weaknesses to support the educational achievement journey of making teaching and learning practices effective.

The major findings of the LSA provide detailed insight into students' academic performance and fundamental external factors affecting students' academic performance. We hope that our recommendations for SED and its attached provincial departments, schools, parents and teachers may help to play an effective role in improving quality of education.

We are thankful to the valuable contributions of the School Education Department (SED), Quaid-e-Azam Academy for Educational Development (QAED), Punjab Curriculum and Textbook Board (PCTB), Programme Monitoring and Implementation Unit (PMIU), District Education Authorities (DEAs), Punjab Education Initiative Management Authority (PEIMA) and the Punjab Education Foundation (PEF) in the assessment design, finalisation of instruments and overall implementation in the province.

The dedication of the PEC team with technical support from the PESP III Technical Assistance team in development and execution of a technical and contextually relevant assessment is highly commendable. I am indebted to all the team members that have worked tirelessly in putting this comprehensive report together.

As an academic, I believe this report provides both rationale and topics for further research in the area of assessment and related aspects to university scholars, research institutions and other agencies. The PEC team welcomes all research collaborations and supports potential partners in collaborative research initiatives, providing expertise in development of research proposals, execution, report writing and access to students' data.

On behalf of PEC, I hope this report will be a valuable resource for all interested readers.

Prof. Dr. Uzma Quraishi

Chairperson, PEC

Message from the Chief Executive Officer, PEC

The Large Scale Assessment (LSA) is the provincial assessment of its kind conducted under the Assessment Policy Framework 2019 for the first time in 2021, for Grade 5. We conducted the assessment as a rapid study in the difficult climate presented under the COVID-19 pandemic.

I am pleased to report that we have successfully conducted the LSA across all thirty-six districts of Punjab. The assessment includes representation of SED, PEF and PEIMA schools. These have been selected through a robust sampling process. In 2021, we have assessed 43,630 students in core areas of literacy, numeracy and scientific skills incorporating writing, speaking and listening assessments. The following subjects have been evaluated: English, Maths, Science and Urdu.

This report presents a comprehensive description of the major findings from the assessment and background questionnaires. I am certain that all readers will get detailed insight into students' academic performance and fundamental external factors influencing academic performance. The LSA 2021 provides district representative data that is of great significance to the continued development of a strengthened education system under the auspices of the Government of Punjab.

The Punjab Examination Commission (PEC) has prepared this report with support of the Third Punjab Education Sector Project (PESP III) Technical Assistance team of Cambridge Education, Mott MacDonald. The report is a collaborative effort of all provincial departments that have been consulted and engaged from development to final conduct of the Large Scale Assessment (LSA) for Grade 5.

We are thankful to our colleagues at the Quaid-e-Azam Academy for Educational Development (QAED), Punjab Curriculum and Textbook Board (PCTB), Programme Monitoring and Implementation Unit (PMIU), District Education Authorities (DEAs), Punjab Education Initiative Management Authority (PEIMA) and Punjab Education Foundation (PEF) for their instrumental role in development and execution of the LSA.

Specific excerpts from this report attributing to curriculum and textbooks, teacher development, quality of public-private partnership (PPP) schools, district performance and other policy issues will be shared with all departments and stakeholders, for future policy considerations and actionable decisions.

Although COVID-19 situation is an austere limitation for results and recommendations but significant results need thoughtful attention. This assessment will be conducted again in the same schools after alignment with Single National Curriculum (SNC) for using it as a baseline for future LSA Grade 5.

Mr. Tariq Iqbal

CEO PEC

Acknowledgements

This report would not have been possible without the valued contribution of many people and institutions. PEC team acknowledges all stakeholders for their invaluable time and effort.

We are highly grateful for the support and contributions of the School Education Department (SED) and other provincial education departments such as Quaid-e-Azam Academy for Educational Development (QAED), Punjab Curriculum and Textbook Board (PCTB), the 36 District Education Authorities (DEAs), Punjab Education Foundation (PEF), Programme Monitoring and Implementation Unit (PMIU) and Punjab Education Initiative Management Authority (PEIMA).

PEC acknowledges and appreciates the commendable inputs of all private sector experts, academicians and teachers from both private and public schools that have contributed in the development of the Large Scale Assessment (LSA) and its successful implementation.

We are indebted to the collaborative efforts of the Technical Assistance teams of the Third Punjab Education Sector Project (PESP III) funded by the World Bank and the Second Punjab Education Sector Programme (PESP II) funded by the Foreign Commonwealth and Development Organisation (FCDO) for their consistent support in the design, development and implementation of the Large Scale Assessment (LSA) 2021. We would like to express gratitude to our team of researchers and experts at PEC (Tariq Iqbal, Zubair Khan Shahid, Iftakhar Hassan Butt, Dr. Muhammad Azeem, Mahboob Ahmed, Dr. Nasir Mehmood, Qammer Sajjad, Saman Rizwan and other colleagues from PEC) along with PESP III team (Naveed Saleh Siddique, Saima Khalid, Maheen Qureshi and Sajjad Aslam) for the development of this report.

Executive Summary

- 1 In February 2020, the Government of Punjab replaced the examination system with the new assessment regime, the Assessment Policy Framework-2019 (APF). The APF introduced a set of three complimentary interlinked assessments (system-level, school-level and classroom-level) that cater to all tiers of the system; (i) for improved policy decisions, (ii) school-based changes and, (iii) teaching and learning practices. These three assessments are of two types in nature: Large Scale Assessment (LSA) - international, regional, and national and School Based Assessment (SBA) - summative and formative.
- 2 This report provides an overview of all the processes used from designing the LSA to its eventual conduct and results. The recommendations to various stakeholders are also given. The sampling methodology, design of the assessment instruments and background questionnaires along with the analysis techniques used have also been elaborated. The report also provides the assessment results as: (i) overall performance of students including (ii) a comparative of scores with teachers and (iii) between students of schools of different organizations (SED and non-SED). Regressions have also been run to understand the (iv) relationship of students' scores with key areas; and (v) feedback of school-based actors such as teachers and school councils. Based on the LSA findings, recommendations for different departments have also been given for use of LSA findings.
- 3 Considerable challenges and changes were made to the design and conduct of LSA 2021 due to the COVID-19 pandemic and wave of school closures during the academic year of 2020-21. Contingency planning by the Government of Punjab led to the implementation of the reduced curriculum under the Accelerated Learning Programme (ALP). For 2021, the curriculum content was revised under the ALP and variations of teaching observed in schools in this academic year. For this purpose, the results of the LSA 2021 are not being considered as a baseline for Grade 5. It is important that for policy decisions, the findings are taken as general information.
- 4 The LSA 2021, has been designed taking in consideration, international best practices of assessment. A comprehensive development process has been followed for assessment development including consultations with private and government school teachers, academics and relevant experts from all government education departments such as QAED, PCTB, PMIU, PEF and PEIMA. The key components and structure for LSA 2021 have been designed by PEC following a rigorous consultative process which includes: composition of the assessment, population coverage, curriculum coverage frequency and timings, output and reporting of the results.
- 5 Data collection under the assessment has been done using two instruments: (1) Assessments (Test papers) for evaluation of Literacy (Urdu and English), Numeracy and Science Skills (as presented in the provincial curriculum including subject competencies, key learning areas and learning strands respectively) and (2) Background questionnaires for head-teachers, teachers, school council members, and parents-students (to collect information about school and classroom pedagogies).

- 6 All developed assessment tools were piloted in 123 schools across Punjab in February 2021 under the technical support of the Second Punjab Education Sector Programme (PESP II) wherein 2082 students took the pilot tests in all four subjects (English, Urdu, Mathematics and Science) over a 3 day period.
- 7 Developed test items also underwent testing for their psychometric properties using the ITEMAN software. Subsequently, the final instruments were developed using only those test items that demonstrated robust psychometric properties. For the literacy assessment, the LSA 2021 introduces reading fluency and listening instruments for the first time for testing skills.
- 8 For this purpose, PEC developed clear and specific guidelines for using the literacy assessment instruments by teachers. An assisting marking scheme was also given for information. These introduction of these two instruments enables evaluation of two essential competencies: (i) comprehending ability and (ii) reading accuracy of the child.
- 9 In June 2021, LSA was conducted in a representative stratified sample of 4363 schools in the province. The schools were sampled as per their administrative arrangement: SED, PEF and PEIMA. In the stratified sample the following was included: (i) both gender (boys and girls), (ii) both locations (rural and urban) and (iii) all types of schools (i.e., Higher Secondary, Secondary, Middle and Primary). Out of the targeted population of 43630 students, 43115 students were covered in the assessment.
- 10 PEC has steered implementation of the LSA 2021 with the help of its core team and staff of SED. For implementation, the test administrators and markers for the schools were nominated by the concerned DEA. The field staff was trained by the PEC officials; comprehensive SOPs detailing all steps for conduct were outlined. All LSA papers were marked at a centralized marking center, using syndicate/group marking. All markers were also provided with relevant scoring guides for support. PEC along with the SED officials including DEA staff observed the whole process through a robust monitoring system.
- 11 A data entry software to ensure validity and accuracy of entered data was designed internally. One hundred data entry operators were recruited and trained to use the software and enter all assessment data. PEC team entered all data in the system by comparing scripts. Up to 10% of the data was verified. Subsequently, the data was also analysed and archived for future use. The significant results from the assessment data are presented in the report.

12 Findings highlight that:

- Overall mean scores achieved by the students is 67%. Female students achieved 69% while male students achieved 66% mean scores overall.
- Subject-wise scores show that female students achieved 67%, 69%, 73% mean scores in the subjects of Mathematics & English, Urdu and Science respectively. Where as male students achieved 63%, 65%, 67% and 70% in the subjects of English, Urdu, Mathematics and Science respectively.
- Overall students had higher percentage scores in MCQ type questions than CRQ type questions.
- For reading fluency assessments, students of Grade 5 can read on average 65 words in English and 89 words in Urdu.
- In listening assessments, students can achieve 88% and 86% in English and Urdu respectively.
- Overall mean scores achieved by teachers is 83%. Female teachers achieved 83% whereas male teachers achieved 84%, in assessments. Overall mean scores of teachers in the subjects is 84%, 84%, 83%, 82% in English, Science, Mathematics and Urdu respectively.
- Overall achievement of students is 68%, 65% and 61% in SED, PEF and PEIMA schools, respectively.
- Subject-wise breakdown of scores shows that:
 - i. In English, students of SED, PEF and PEIMA scored 65%, 63% and 59% respectively.
 - ii. In Mathematics, students of SED, PEF and PEIMA scored 68%, 63% and 60% respectively.
 - iii. In Urdu, students of both SED, PEF and PEIMA scored 67%, 67% and 62% respectively.
 - iv. In Science; students of SED, PEF and PEIMA scored 72%, 69% and 56% respectively. While overall achievement of teachers is 84%, 80% and 79% in SED, PEF and PEIMA schools respectively.

13 The data showed significant impact of background factors on students' achievement:

- Academic and professional qualification of teachers, their training, healthy teaching practices in classroom, and their friendly behaviour has positive significant impact.
- Availability of basic facilities in school and classrooms, opportunity to participate in co-curricular activities, use of curriculum and teachers' guides, avoidance of corporal punishment, utilization of the non-salary budget (NSB) and parents qualification also have positive and significant impact on child's learning.
- Multi-grade teaching has significant negative impact on students learning.

14 The recommendations to key stakeholders based on the findings of the study are given, in the last section of the report, to improve the overall quality of the education in the province. By using these findings PEC intends to strengthen LSA of Grade 5 in 2021 with improved modules, detailed background questionnaires and test items aligned with the Single National Curriculum (SNC). In 2022, the LSA for Grade 5 and other Grades will be aligned with the SNC, so that LSA 2022 can be serve as a baseline, as aforementioned in the Assessment Policy Framework.



Introduction





Building a strong education system that promotes learning for all is fundamental to a country's development and economic growth (Clarke and Luna, 2021)¹. The role of 'assessment' through tracking and measuring of this learning cannot be ignored. Developed education systems across the world focus on having a strong centralised assessment mechanism that measures student performance, provides feedback for policy actions and assists in alignment of all actors.

For the province of Punjab, the assessment mechanism is led by the Punjab Examination Commission (PEC). Under its Commission, PEC is mandated to 'design, develop, implement, maintain, monitor and evaluate a system of examination for elementary education (Grade 1-8)². Till 2019, PEC conducted annual curriculum-based examinations for Grades 5 and 8. The examination system from February 2020 was replaced by the new assessment regime, the Assessment Policy Framework (APF)³.

1.1 The New Assessment System under the Assessment Policy Framework (APF)

The APF is the overarching framework for assessments in the province focused on serving all purposes of a best practice educational assessment system: (i) tracking changes from one learning point to the other (ii) making informed choices for grade promotions, and (iii) helping teachers make informed decisions to refine teaching practices according to student learning needs⁴.

The new assessment system focuses on introducing transparency and autonomy of teachers. This is a marked change from the previous examination system that focused on the notion of accountability with greater punishments attached with assessment results. The conduct of high-stake examinations previously led to the creation of an unfriendly learning environment at the school level; leading to continuous pressure on teachers to achieve results with students resorting to more rote learning and cheating.

The APF eliminates these concerns by introducing a set of three complimentary interlinked systems that cater to all tiers of the system; (1) system level through provision of feedback for improved policy decisions (2) school-level feedback for school-based changes and, (3) classroom-level consistent feedback for the teacher to continuously change and improve teaching and learning practices.

All of the three systems while are complimentary in nature are diverse in design, purpose, methodology and use of assessment results. The key objectives and three-tiered system is given in Box 1.1.

The envisioned system under APF can be classified into two types:

Large Scale Assessments (LSA) (International, National and Regional Level) – to monitor and provide information on overall performance levels in the system, changes in those levels over time, and contributing factors.

School-Based Assessments (SBA) (Summative and Formative) – to track students' progress at different intervals to refine teaching instructions and classroom assessments to provide real-time information to aid teaching and learning process in classrooms.

¹ Clarke, M. and Luna, B.D. (2021). Primer on Large Scale Assessments of Educational Achievement. National Assessments of Educational Achievement; Washington, DC: World Bank. <https://openknowledge.worldbank.org/handle/10986/35494> License: CC BY 3.0 IGO

² PEC. (2010). The Punjab Examination Commission Act 2010. Can be accessed at: https://pec.edu.pk/system/files/THE_PUNJAB_EXAMINATION_COMMISSION_ACT_2010.pdf

³ APF (2019). Assessment Policy Framework. School Education Department (SED), Government of Punjab. Notification of February 3, 2020. Can be accessed at: https://pec.punjab.gov.pk/system/files/Notification%20of%20APF%202020_0.pdf#overlaycontext=node/113

⁴ PESP III (2019). Assessment Policy Framework Guiding Report. The Third Punjab Education Sector Project Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission (PEC), 2019.

Box 1.1

Objectives of APF and the Three Systems of Assessment

The APF policy framework aims to:

- help establish a systematic way of developing, implementing and utilizing assessments for teaching and learning process.
- assist and bridge information gaps by providing a platform to all stakeholders for discussion and use of assessment results for improved practices
- help the province to adopt internationally recognised best assessments practices appropriate to the context of the province Punjab.

The APF Three-Tiered System Establishment:

The institutionalization of the system leads to the following.

- Sample-Based Large Scale Assessments (LSA),
- Summative School-Based Assessments (SBA) and
- Formative Assessments (FA)

SYSTEM LEVEL

The **system level LSA** will focus on assessing: elementary level curriculum of key subjects and skills, early grade assessment of literacy and numeracy, and need-based assessments.

SCHOOL LEVEL

The **school level SBA** will be term-wise curriculum based assessments conducted by schools themselves. Test papers will be constructed using centralised item banks (developed by PEC).

CLASSROOM LEVEL

The **classroom level FA** will be consistent testing by teachers during and after lessons periodically. These are to be evaluation of students on a continuous basis on an SLO/unit/topic/sub-topic etc.

1.2 Implementation of the Large Scale Assessment (LSA)

Large Scale assessments (LSA) provide information on overall levels of student achievement in the system for a particular curriculum area and at a particular grade level.

Literature shows us that these assessments vary globally in terms of (i) school grades and age levels tested, (ii) population coverage, (iii) subjects and skills coverage, (iv) frequency (v) test administration, (vi) collection of background data and (vii) reporting and use of results⁵.

Large Scale Assessment (LSA) is the first provincial assessment of its kind conducted under the Assessment Policy Framework 2019 by the Punjab Examination Commission (PEC) in the assessment cycle of 2021 for Grade 5 students.

The assessment has a two-fold purpose per its intended design:

- To assess core literacy, numeracy and scientific skills through subjects of English, Urdu, Mathematics and Science of students of Grade 5;
- To collect background information on external factors influencing the learning of students.

For 2021, the LSA provides the system with overall feedback on overall student performance of Grade 5 for improvements in teacher development and training, curriculum and textbooks and related policy considerations.

The assessment has been conducted in a representative stratified sample of 4363 schools in all 36 districts of the province. The LSA for 2021 has been designed following international best practices and a comprehensive development process including private and government school teachers, academics and relevant experts from all government education departments such as the Quaid-e-Azam Academy of Educational Development (QAED), Punjab Curriculum and Textbook Board (PCTB), Programme Monitoring and Implementation Unit (PMIU), Punjab Education Foundation (PEF) and the Punjab Education Initiative and Management Authority (PEIMA).

4363
Schools

⁵ Ibid. Reference 1



Box 1.2

Key questions that LSAs address

Extract taken from Greanery and Kallaghan, 2008

LSAs can provide support in policy decisions by addressing some key questions:

- How well are students learning in the education system? Are they meeting specific learning standards?
- Are there particular strengths and weaknesses in student knowledge and skills?
- Do particular subgroups perform worse than others? Are there disparities, for example, between the performance of boys and girls or students from different language groups?
- What factors are associated with student achievement? To what extent does student achievement vary with the characteristics of the learning environment (teacher knowledge and preparation, school resources etc.) or with students home circumstances?
- Does student achievement change over time? What factors are linked to changes in student achievement over time?

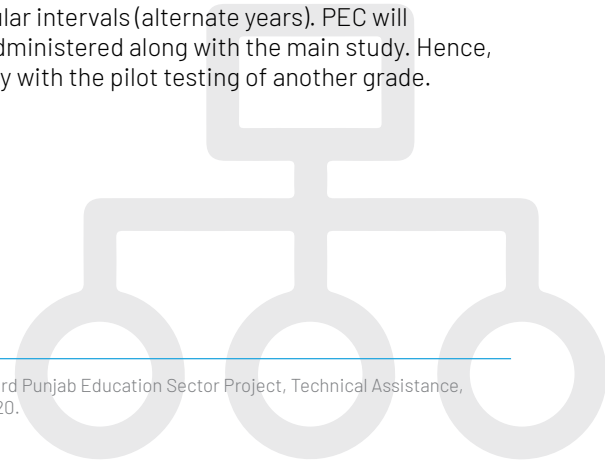
1.3 Structure of LSA under APF

The APF provides the overall structure for all system-level LSAs. The key components and structure has been developed by PEC following a rigorous consultative process. The final structure of the assessment has been drafted taking into account the best international assessment models conducted globally; the Programme for International Student Assessment (PISA), Trends in International Maths and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS)⁶.

Key components of the LSA include:

- **Composition of Assessment:**
 - a. Assessment of Literacy and Numeracy Skills at primary level and to cover additional subjects as directed by SED.
 - b. Assessment of knowledge and key skills of core subjects at the middle level and ultimately to cover additional subjects as directed by SED.
- **Population Coverage:** The assessments will cover selected students through a representative stratified sample of schools, students, teachers and any other target audience/points as per the assessment requirements.
- **Frequency and Timing:** The assessments will be conducted at regular intervals (alternate years). PEC will implement the LSA in a way that the pilot study of a grade will be administered along with the main study. Hence, each year LSA for a specific grade will be conducted simultaneously with the pilot testing of another grade.

⁶ PESP III. (2020). Large Scale Assessment (LSA) for Grade 5 Assessment Framework. The Third Punjab Education Sector Project, Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission (PEC), 2020.



- **Curriculum Coverage:**
 - a. Literacy Skills (English and Urdu Languages) and Numeracy (Mathematical Skills) for primary level.
 - b. Selected (prioritized) and measurable SLOs in core subjects at the middle level (to be added in the future).
- **Output:** LSA aims to achieve the following:
 - a. scores for Literacy and Numeracy for primary school sampled students.
 - b. scores in core subjects' knowledge and key skills/disciplines/ competencies assessed for sampled students from middle schools will be introduced in the future.
 - c. identification of factors influencing learning experience.
- **Reporting of Results:** Reporting of student score in percentage and mean scores.

1.4 Guide to the Report

The LSA 2021 Main Findings report provides the key insight and evidence gained on student and teacher performance for Grade 5. The report is organised into three chapters.

Chapter 1 provides an introduction over the implementation and structure of the Large Scale Assessment under the Assessment Policy Framework.

Chapter 2 provides an outline of the methodology followed in development of the LSA 2021. It enumerates the sampling methodology, assessment instruments, background data-collection instruments and the analysis techniques used.

Chapter 3 details the assessment results. A specific section on key highlights is already given at the start of the report in the Executive Summary. The detailed assessment data is further divided into three parts:

- i. overall performance of students including a comparative of scores with teachers and between students of different schools (SED and non-SED);
- ii. relationship of student scores with key areas;
- iii. feedback of school-based actors such as teachers and school councils.

Chapter 4 provides the recommendations for different departments for use of LSA findings.





About the Large Scale Assessment (LSA) 2021



The LSA 2021 was conducted across 36 districts of Punjab conducted during June 11-15, 2021.

The assessment is conducted on the provincial curriculum of 2006 centered on the SLOs of the reduced curriculum under Accelerated Learning Programme (ALP) to evaluate student scores.

2.1 Methodological Approach

- **Target Population:** The total population of this study consists of 4363 schools under which 31,796 students and 2276 teachers have been assessed in 36 districts.

2.1.1 Sampling Methodology

- **Composition of Sample:** Three types of schools are included as per their administrative arrangement: SED, PEF and PEIMA. The sample selected has the following characteristics:
 - a. Gender (Boys and Girls Schools)
 - b. Type of school (Primary, Middle, High and Higher Secondary Schools)
 - c. Location (Rural and Urban areas)

The following exclusions are made in the sample:

- **Schools with less than ten students are excluded**
- **Mosque schools are not part of the sample**
- **In PEF data:**
 - i. Co-education schools are categorised into boys or girls' schools according to the number of girls and boys students, i.e., the schools with more number of girls than boys are categorised as girls' schools and vice versa.
 - ii. Schools having an equal number of boys and girls are considered boys' schools. Additionally, if the school has less than ten students after its categorisation on the basis of gender, it is excluded from the sample.
 - iii. High schools are considered Secondary schools.
 - iv. Additionally, the schools in slum areas are considered and treated schools of urban areas.

In the sample, each district of the province was stratified into multiple sub-strata, namely by urban and rural stratum, school type (i.e., Higher Secondary, Secondary, Middle and Primary) and boys' and girls' schools.

Considering the characteristic variability for which estimates needed to be prepared, population distribution and reliability constraints, different sample sizes for each type of school were computed and fixed.

The following sample sizes were selected to provide reliable estimates of key variables at both district (SED schools) and provincial levels (PEIMA and PEF schools):

Table 1a: Sample Size of Schools for LSA 2021

		SED	PEF	PEIMA	Total
Sample Size (Schools)= n		3483	739	141	4363
Students		34830	7390	1410	43630
Reliability parameters	Confidence Level	99%	95%	95%	
	Margin of Error ⁷	4.61%	7.70%	5%	
	Prevalence rate ⁸	50%	50%	50%	
	Design effect	1.112	1.114	1	

Note: The numbers are after adjusting of rounding offs

⁷ The margin of error or the 'confidence interval' is the measurement of error in the results of a survey specifically one that relies on the random sampling method.

⁸ The prevalence rate in the sample refers to the proportion of schools in the population that have a certain attribute at a specified point in time over a specified period.

To avoid a very large increase in the variance due to stratification, the number of students to be selected per school were kept 10 students.⁹

- Scale of Study

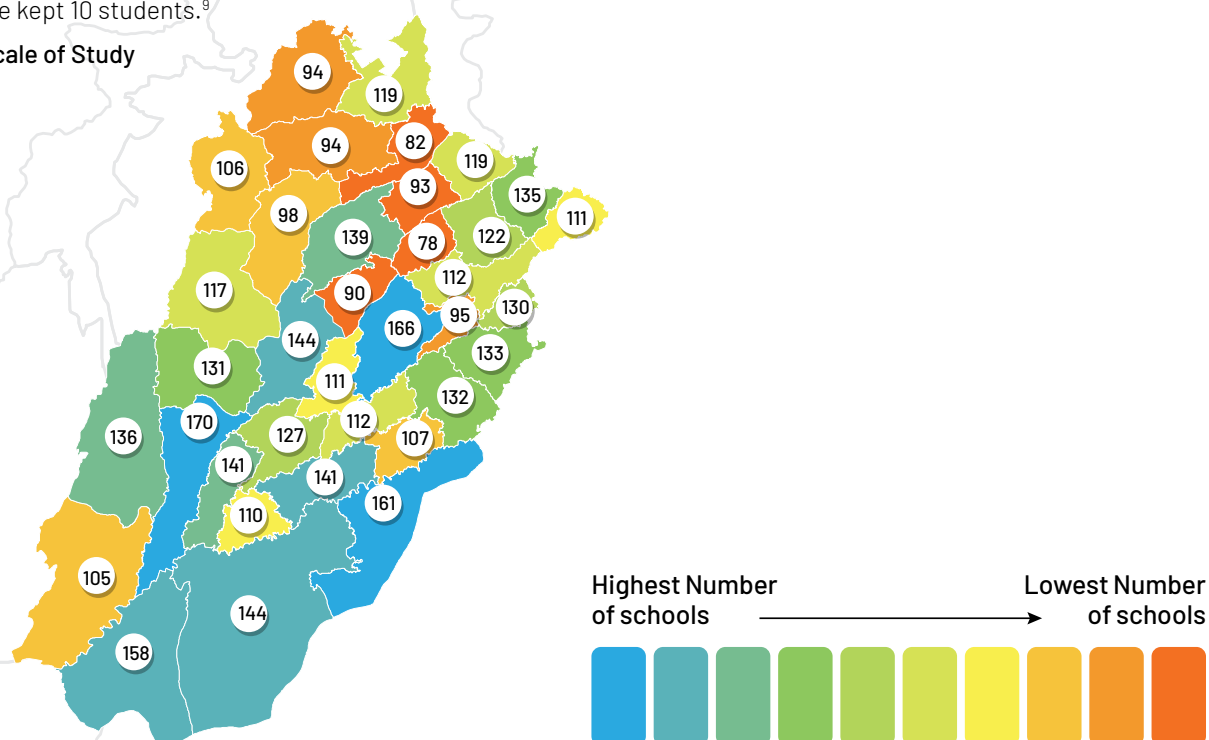


Table 1b: District-wise Data: Number of Schools

District-wise data: number of schools									
	PEF	PEIMA	SED	Total		PEF	PEIMA	SED	Total
ATTOCK	9	3	82	94	LODHRAN	33	3	74	110
BAHAWALNAGAR	34	5	122	161	MANDI BAHU UD DIN	8	4	81	93
BAHAWALPUR	41	6	97	144	MIANWALI	18	3	85	106
BHAKKAR	21	3	93	117	MULTAN	40	4	97	141
CHAKWAL	13	3	78	94	MUZAFFARGARH	52	7	111	170
CHINIOT	13	2	75	90	NANKANA SAHIB	12	3	80	95
DERA GHAZI KHAN	38	3	95	136	NAROWAL	13	5	93	111
FAISALABAD	22	5	139	166	OKARA	23	5	104	132
GUJRANWALA	12	5	105	122	PAKPATTAN	17	3	87	107
GUJRAT	13	4	102	119	RAHIMYAR KHAN	26	5	127	158
HAFIZABAD	4	3	71	78	RAJANPUR	28	4	73	105
JHANG	31	5	108	144	RAWALPINDI	12	3	104	119
JHELUM	4	2	76	82	SAHIWAL	11	3	98	112
KASUR	19	6	108	133	SARGODHA	13	4	122	139
KHANEWAL	21	3	103	127	SHEIKHUPURA	13	6	93	112
KHUSHAB	18	2	78	98	SIALKOT	16	6	113	135
LAHORE	28	4	98	130	TOBA TEK SINGH	8	2	101	111
LAYYAH	22	4	105	131	VEHARI	33	3	105	141
Total						739	141	3483	4363

Note: Due to some administrative issues faced, the assessment has not been conducted in some schools in the districts.

⁹ PESPIII. (2021). Sample size for Large Scale Assessment (LSA) for Grade 5 Report. The Third Punjab Education Sector Project, Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission(PEC), 2021.

- **Number of Students and Teachers Participating in LSA**

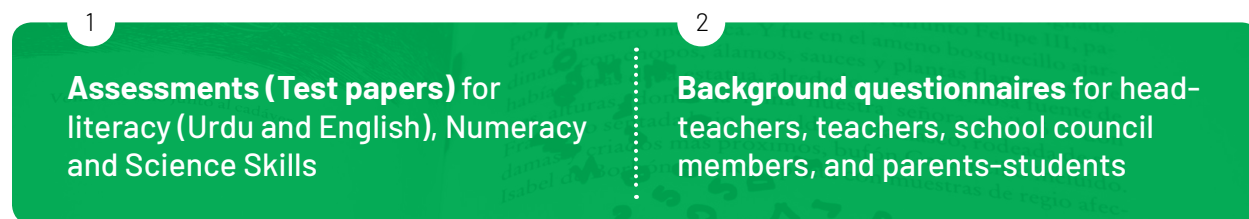
The LSA 2021 has been taken by a sample of both students of Grade 5 and teachers teaching Grade across the 36 districts. The table below provides the details.

Table 2: District-wise breakdown of student and teachers participating in LSA 2021

District-wise data: number of students and teachers who attempted all instruments								
	Student				Teacher			
	PEF	PEIMA	SED	Total	PEF	PEIMA	SED	Total
ATTOCK	49	30	684	763	3	2	39	44
BAHAWALNAGAR	269	46	936	1251	17	2	51	70
BAHAWALPUR	357	54	671	1082	22	3	47	72
BHAKKAR	132	29	690	851	12	1	49	62
CHAKWAL	94	13	540	647	4	1	40	45
CHINIOT	107	11	578	696	7	0	41	48
DERA GHAZI KHAN	253	24	701	978	20	1	50	71
FAISALABAD	170	40	1049	1259	9	2	89	100
GUJRANWALA	92	23	620	735	6	1	42	49
GUJRAT	87	18	713	818	4	2	54	60
HAFIZABAD	29	26	546	601	1	2	43	46
JHANG	228	39	716	983	13	5	54	72
JHELMUM	35	18	549	602	0	0	41	41
KASUR	152	41	802	995	11	3	63	77
KHANEWAL	158	29	727	914	13	2	54	69
KHUSHAB	148	15	564	727	10	0	34	44
LAHORE	215	31	746	992	15	1	45	61
LAYYAH	158	33	711	902	14	2	55	71
LODHRAN	243	23	533	799	17	1	38	56
MANDI BAHAUD DIN	48	27	588	663	3	3	43	49
MIANWALI	137	28	634	799	8	1	51	60
MULTAN	289	20	684	993	21	2	55	78
MUZAFFARGARH	383	37	813	1233	29	3	53	85
NANKANA SAHIB	58	10	578	646	4	1	37	42
NAROWAL	65	35	684	784	9	1	54	64
OKARA	179	35	754	968	11	2	54	67
PAKPATTAN	107	21	589	717	8	1	41	50
RAHIM YAR KHAN	216	43	994	1253	15	2	62	79
RAJANPUR	214	27	547	788	17	1	45	63
RAWALPINDI	84	18	700	802	7	2	55	64
SAHIWAL	83	16	722	821	7	1	59	67
SARGODHA	107	37	934	1078	11	3	72	86
SHEIKHUPURA	97	34	683	814	7	2	33	42
SIALKOT	115	33	818	966	9	3	54	66
TOBA TEK SINGH	62	5	666	733	3	1	57	61
VEHARI	268	29	846	1143	25	2	68	95
Total	5488	998	25310	31796	392	62	1822	2276

2.1.2 Assessment Instruments

LSA 2021 assessment uses two instruments:



- **Type of assessment instruments**

The assessment (test papers) are further divided by type. For LSA 2021, the students of Grade 5 have been tested using 3 types of instruments:

Table 3: Type of Assessments Conducted under LSA 2021

Sr. No.	Type of assessment Instrument	Used in testing of
1	Listening (Oral)	Literacy (English and Urdu)
2	Reading Fluency (Oral)	Literacy (English and Urdu)
3	Curriculum/SLO knowledge (Written)	Literacy (English and Urdu), Numeracy (Mathematics) and Scientific Inquiry (Science)



- **Curriculum Content and Cognitive levels tested**

The LSA 2021 focuses on assessing literacy, numeracy skills and understanding of different scientific concepts and their application in daily life as presented in the provincial curriculum. This includes competencies, key learning areas and learning strands respectively.

A brief description of each area¹⁰ includes:

¹⁰ Ibid, Reference 6

Table 4: Summary of Content Coverage

Area	Literacy
Description	i. Literacy is the ability to identify, understand, interpret, create, communicate, and compute, using printed and written materials associated with varying contexts. ii. It involves a continuum of learning enabling individuals to achieve their goals, develop their knowledge and potential, and participate fully in their community and wider society. iii. With the knowledge of words, grammar and visuals, literacy has two major processes: (a) comprehending texts through listening, reading and viewing (b) composing texts through speaking, writing and creating.
Coverage under LSA	LSA 2021 has assessed the two processes (excluding viewing and speaking) along with knowledge of words and grammar.
Area	Numeracy
Description	i. Numeracy is the ability to use numbers and solve problems in real life. It means having the confidence and skill to use numbers and mathematical approaches in all aspects of life. ii. It is organised into six interrelated elements: (a) estimating and calculating with whole numbers (b) recognising and using patterns and relationships (c) using fractions, decimals, percentages, ratios and rates (d) using spatial reasoning (e) interpreting statistical information (f) using measurement.
Coverage under LSA	LSA 2021 has assessed the knowledge, understanding and application level of the above six skills.
Area	Scientific skills
Description	i. The term 'scientific skills' is defined as a set of broadly transferable abilities appropriate to many science disciplines and reflective of the behaviour of scientists. ii. Understanding various science concepts and their application in daily life is very important for students. It helps them understand the world, nurture their curiosity, and develop essential skills, including inquiry, observation, prediction, analysis, reasoning, and explanation. iii. Primary Science is both a process of inquiry and a body of knowledge. The development of scientific skills and attitudes is inextricably linked to the development of ideas in science. As students' ideas evolve, an understanding of the nature of science needs to be acquired along with its relationship to technology, society and the environment. iv. The curriculum of science is divided into four key learning areas: (a) life science (b) physical science (c) earth and space science (d) technology, and technical education.
Coverage under LSA	LSA 2021 assessed the knowledge, understanding and application level of the three areas of primary Science. Technology and Technical Information content involves hands-on experience (operate, use, practise, assemble, prepare) and could not be assessed through the paper-pencil test. Therefore, the list of Science student-learning outcomes (SLOs) does not contain outcomes that are technology-based.

PEC followed a consultative process with PCTB, QAED along with practicing teachers from private and public schools to prioritize SLOs for Literacy (English and Urdu), Numeracy (Mathematics) and Scientific Inquiry (Science). All SLOs included have undergone a thorough review process by the experts. Final selection of SLOs under ALP was done through a series of workshops in late 2019.



Reviewers from PEC, PCTB and QAED prioritizing SLOs from the ALP 2021 for Grade 5 English.

Group of private and public teachers, subject specialists from PEC, QAED and PCTB working on subject-wise SLOs.



LSA 2021 includes:

1. Targeted SLOs for the basic concepts of Grade 5

These were selected by reviewers based on them being considered the minimum benchmarks/ foundational knowledge needed for promotion into the next Grade.

2. SLOs needed to align with the international benchmarks for literacy and numeracy

Reviewers studied the national curricula for literacy of three countries, namely Australia, Canada and Bangladesh, and noted the common topics/concepts for literacy and numeracy. The prevalence of common topics/ concepts in the curricula of different countries indicates the significance of these topics as fundamental to the primary level education system.

• Quality assurance of Assessment Instruments

All assessments have undergone quality controls set by PEC. The validity and reliability of the assessment has been checked under the institutional processes and protocols set by the organisation.

The Table of Specification (ToS), as indicated in the design of the LSA Framework 2020, was followed to develop subject-specific test items. All developed test items underwent testing for their psychometric properties. PEC assessment and research staff used the ITEMAN software to psychometrically assess the items and developed the final instruments using only those items that demonstrated robust psychometric properties. For the literacy assessment, LSA 2021 introduces reading fluency and listening instruments for the first time. Therefore, PEC developed clear and specific guidelines for use by teachers for literacy assessment. Finally, PEC developed a comprehensive marking scheme for the assessments.

In 2020 as per the APF design stated in section 1.3, the completed instruments were piloted in Grade 5 classrooms. The pilot was conducted in 123 schools across Punjab. 2082 students took the pilot test in all four subjects (English, Urdu, Mathematics and Science) over 3 days¹¹.

2.1.3 Background Data-Collection on Influencing Factors

The LSA 2021 focuses on understanding all factors that affect students' performance.

While the assessment instruments are designed to collect information on academic performance, additional factors such as socioeconomic status, household set-up, interests towards learning, etc., are equally important. For this purpose, the LSA covers the use of comprehensive background questionnaires that can provide information about school and classroom pedagogy.

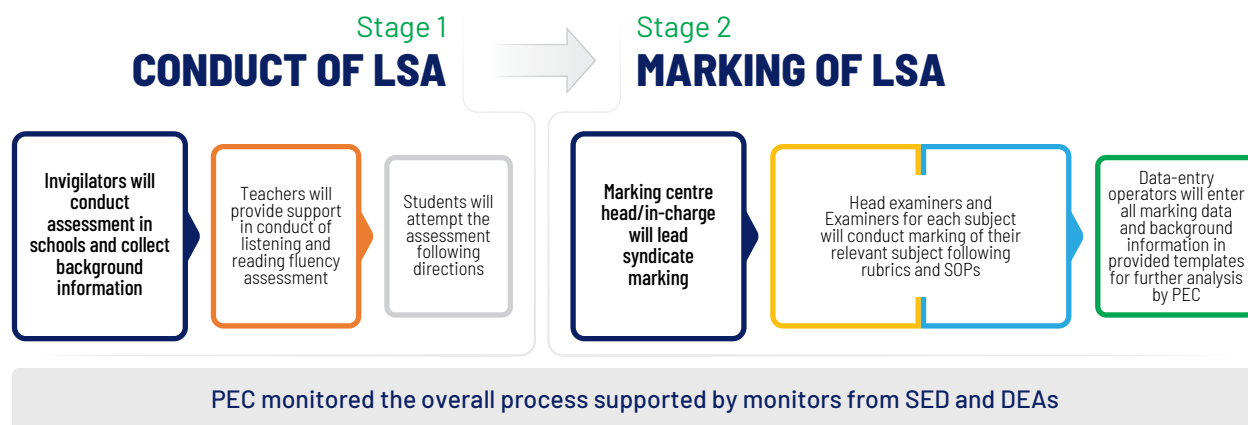
Information under the assessment has been collected at three levels which are as followed.

- i. Home-related factors
- ii. School-related factors
- iii. Classroom-related factors

2.1.4 Standard Operating Procedures (SOPs) for Conduct and Marking of LSA

PEC has led the implementation of LSA 2021 with its core team and staff of SED. Test administrators nominated from schools were major actors engaged in conduct of the assessment at the school level. To assist the administration team, comprehensive SOPs detailing steps for conduct and marking of assessment were developed. The SOPs were finalised following a consultative process with all internal wings at PEC (research, administration, finance and IT wings). Under the guidelines for marking, syndicate method of marking was outlined by PEC. Markers were also provided relevant rubrics for marking the scripts.

The SOPs provide defined roles and responsibilities for each stakeholder engaged in conduct and marking activities¹². Figure 1 provides an illustrative overview.



¹¹ PESP III. (2020). Pilot Report of Large Scale Assessment (LSA) for Grade 5. The Third Punjab Education Sector Project, Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission (PEC), 2020.

¹² PESP III. (2021). Standard Operating Procedures for Sample-based Large Scale Assessment (LSA) for Grade 5 Report. The Third Punjab Education Sector Project, Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission (PEC), 2021.

PEC trained all the test administration team over their supervisory responsibilities in schools through a 1-day workshop. The trainings were carried out with all teams across the 36 districts.

Required material packs were provided with detailed instructions, research tools and relevant stationery for students and test administrators to ensure smooth conduct of assessment.

Similarly, all teachers engaged in the marking of the assessment were provided training for use of the rubrics and related materials.

2.1.5 Quality Assurance Parameters of Assessment

For quality assurance, PEC and SED developed a robust monitoring system to observe the conduct of assessments in the field and marking at central marking centre. A monitoring plan was drafted with detailed instruments to ensure smooth and fair conduct across the sample of schools.¹³

- **During the Conduct of Assessment:**
 - a. PEC along with monitors from the SED and the 36 District Education Authority (DEA)s conducted spot checks and visits across the province.
 - b. PEC created a provincial control room to assist the monitors and resolve all issues arising in the field. Test administrators and monitors could contact the PEC staff anytime during the conduct.
- **During the Marking of Assessment:**
 - a. PEC subject specialists conducted regular checks at the marking centre with technical reviews to ensure accuracy of the marking process.

Results from the monitoring highlight that the assessment was successfully completed across the province with no major issues. The processes laid out for the assessment were fully followed by all stakeholders engaged in the assessment conduct.



One-day Training Workshop at District Lahore with Test Administrators

¹³ PESP III. (2021). Monitoring Plan for Large Scale Assessment (LSA) for Grade 5 Report. The Third Punjab Education Sector Project, Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission (PEC), 2021.

2.1.6 Data Entry and Analysis

PEC developed a data entry software to ensure validity and accuracy of the data entered. One hundred Data Entry Operators were recruited and trained to use the software and enter all assessment data. PEC nominated a team of ten monitors for the validation of entered data. Upon completing all data entry, the PEC team performed checks to ensure data accuracy and validation at the system level. The team verified up to 10% of data by comparing scripts with data entered in the data entry system.

LSA data has been analysed using appropriate statistical techniques relevant to the nature of the variables¹⁴. These include using:

- i. Descriptive Analysis
- ii. Regression Analysis

The analysis results are explained in detail in Chapter 3 of this report. It is pertinent to note that only significant results are included in the analysis unless there is a valid reason or inference from results that are not statistically significant.

The variables which are categorical or ordinal (e.g., yes/no, Likert scale etc.) in nature are presented in the form of frequency tables.

During the data analysis, it was found that though the overall sample target of 43,115 students out of 43,630 students was covered, only 31,796 students attempted all four subjects within the overall sample, whereas 11,319 students did not attempt all four subjects. The partial subject scores of 11,319 students were not sufficient to produce an overall aggregate score based on the score of all four subjects. Thus, the score of 11,319 students, who did not attempt all four subjects, could not be included in the aggregate score of 31,796 students who attempted all four subjects.

After detailed discussions, it was decided to exclude data of the 11,319 students approximately 26% of the total sample. Since the overall sample is sufficiently large to produce reliable estimates, the scores of students who appeared in all four papers have been used for analysis and reporting. The same strategy is employed for teacher's scores.

2.2 Impact of COVID-19

The ongoing COVID-19 pandemic and school closures have been the two most serious challenges for the academic year of 2020-21. Contingency planning by the Government of Punjab led to the implementation of the reduced curriculum under the ALP.

The LSA 2021 content was revised under the ALP and variations of teaching have been observed in schools in this said academic year.

For this purpose, the results of the LSA 2021 are not being considered as a baseline for Grade 5. For policy decisions, the findings should be taken as "Specific to the reduced academic year of 2020-21."



¹⁴ PESP III. (2021). Large Scale Assessment (LSA) Analysis Framework Report. The Third Punjab Education Sector Project, Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission (PEC), 2021.



Findings



3

The LSA 2021 is conducted in 4,363 schools of SED, PEF and PEIMA. The results of the assessment are given in detail in this chapter.

3.1 Overall Student Performance

3.1.1 Gender-wise Performance

Figure 2: Overall Mean Scores Achieved by Students

Results show that overall students attained a score of 67% in the assessment. Females scored 3% higher than males.

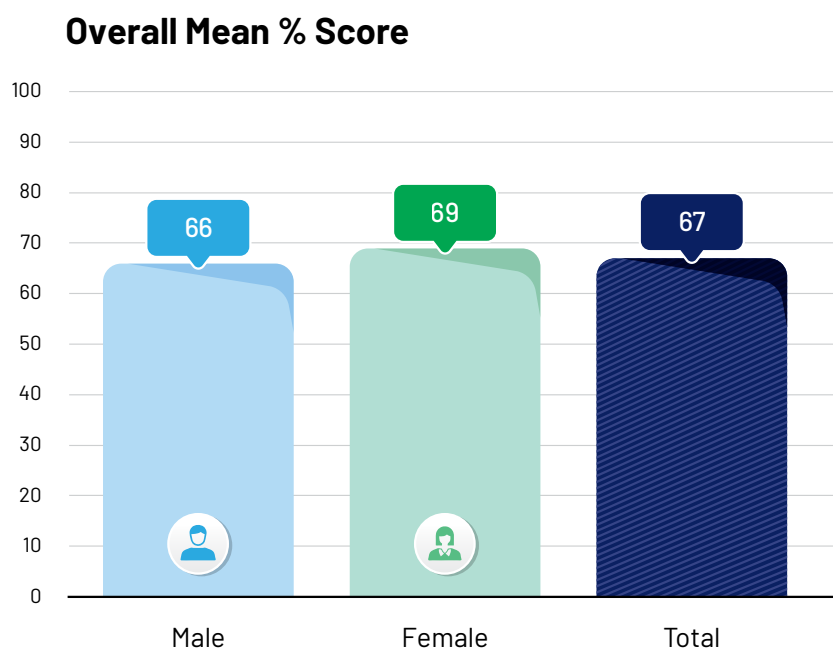
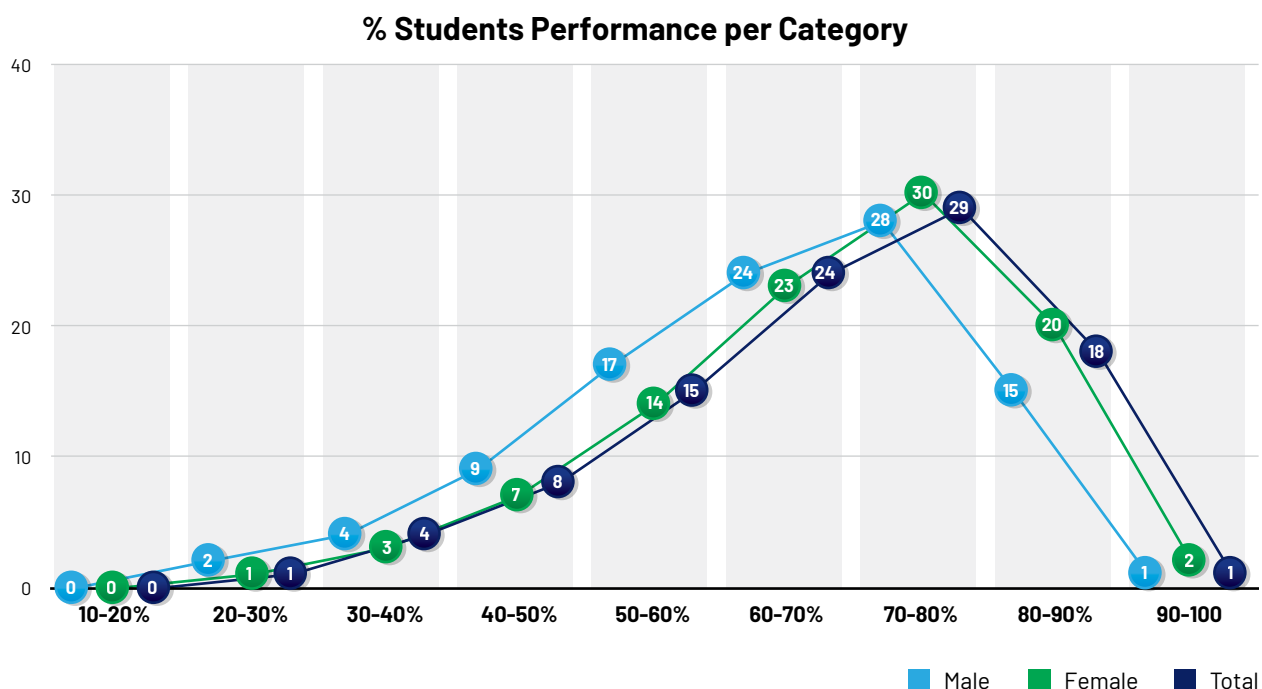


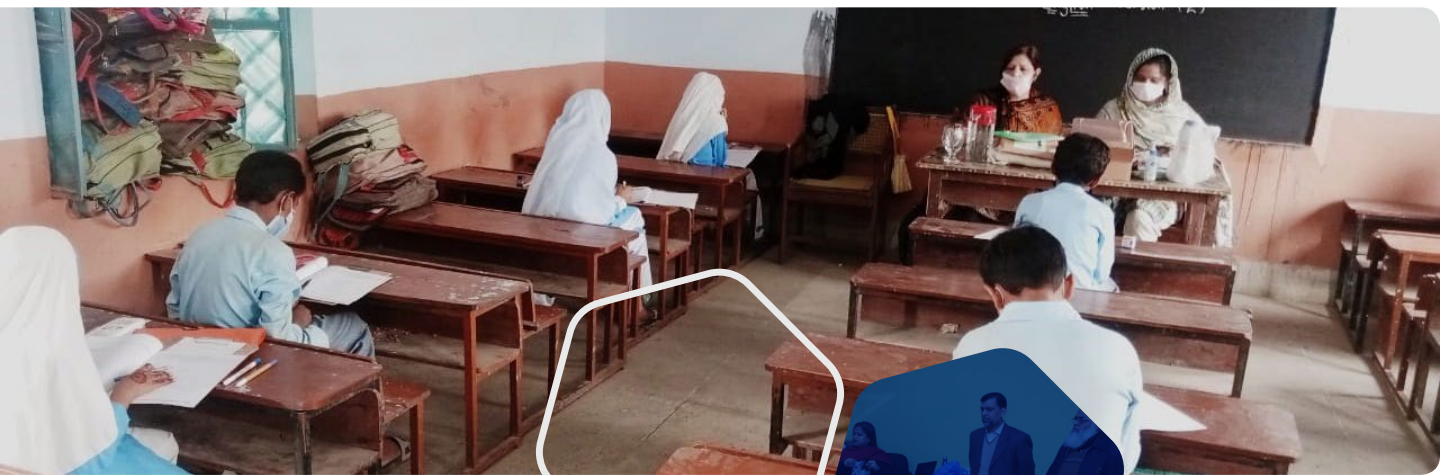
Figure 3: Overall Students' Performance by Category

In Figure 3, nine categories have been defined to understand performance:



Majority of students scored in the 60-90% category. Subject-wise performance of scores provides the same findings:

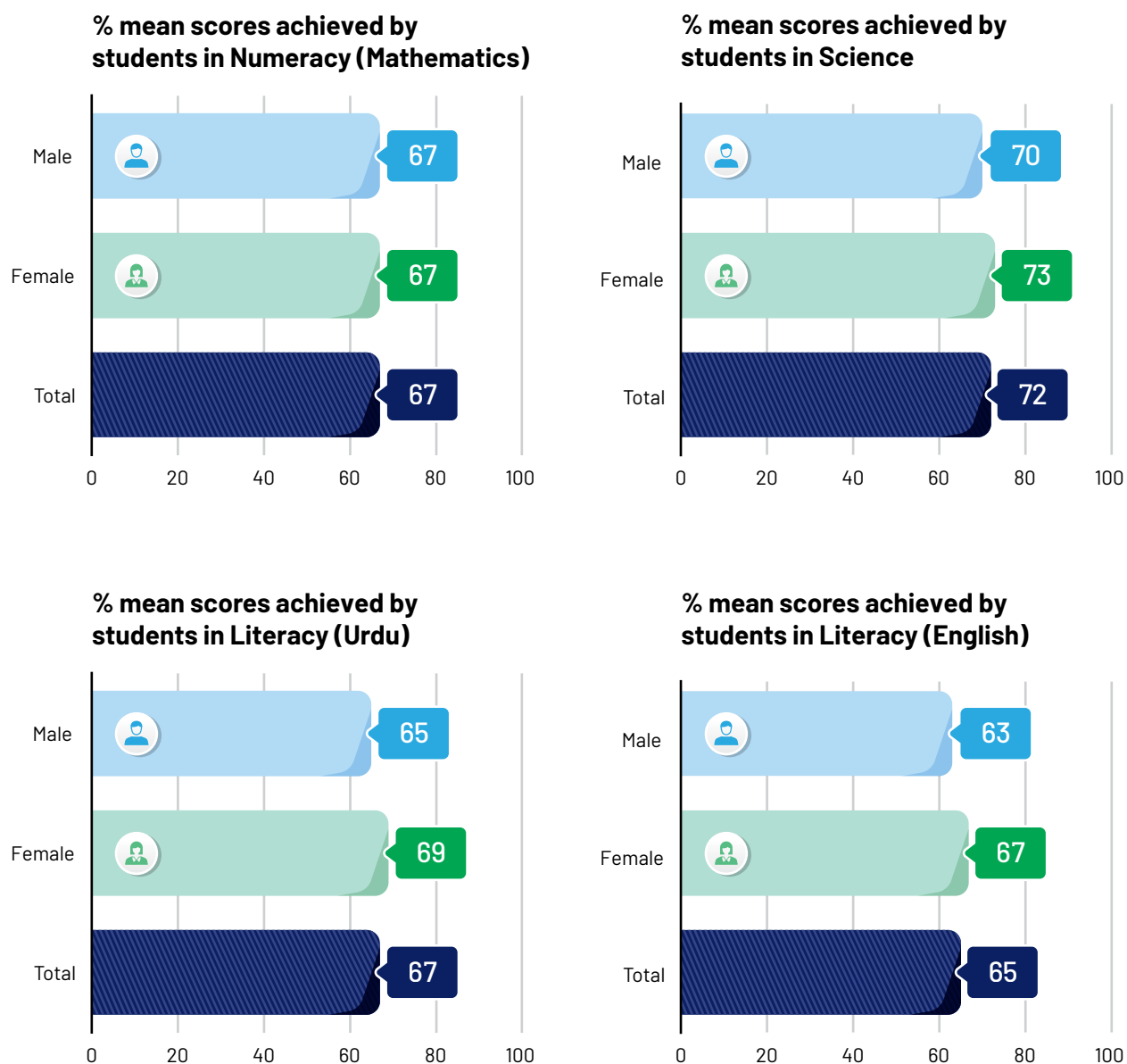
	English		Urdu		Mathematics		Science	
	%Male	% Female	%Male	% Female	%Male	% Female	%Male	%Female
Less than 10%	<1	<1	<1	<1	<1	<1	<1	<1
10%-20%	2	1	1	0	2	2	1	1
20% - 30%	4	3	2	1	3	4	3	2
30% - 40%	7	6	5	4	6	6	5	4
40% - 50%	12	9	10	7	10	9	8	6
50%-60%	19	15	17	12	14	13	12	10
60% - 70%	22	21	25	23	18	18	16	15
70% - 80%	19	22	26	32	20	22	21	22
80% - 90%	13	17	13	18	19	19	22	25
90% - 100%	3	7	1	2	9	8	13	15
Total	100	100	100	100	100	100	100	100



3.1.2 Subject-wise Performance

Figure 4: Overall Students' Performance Achieved per Subject

The figures below show the subject-wise mean percentage scores under the curriculum of Mathematics, Science, Urdu and English.

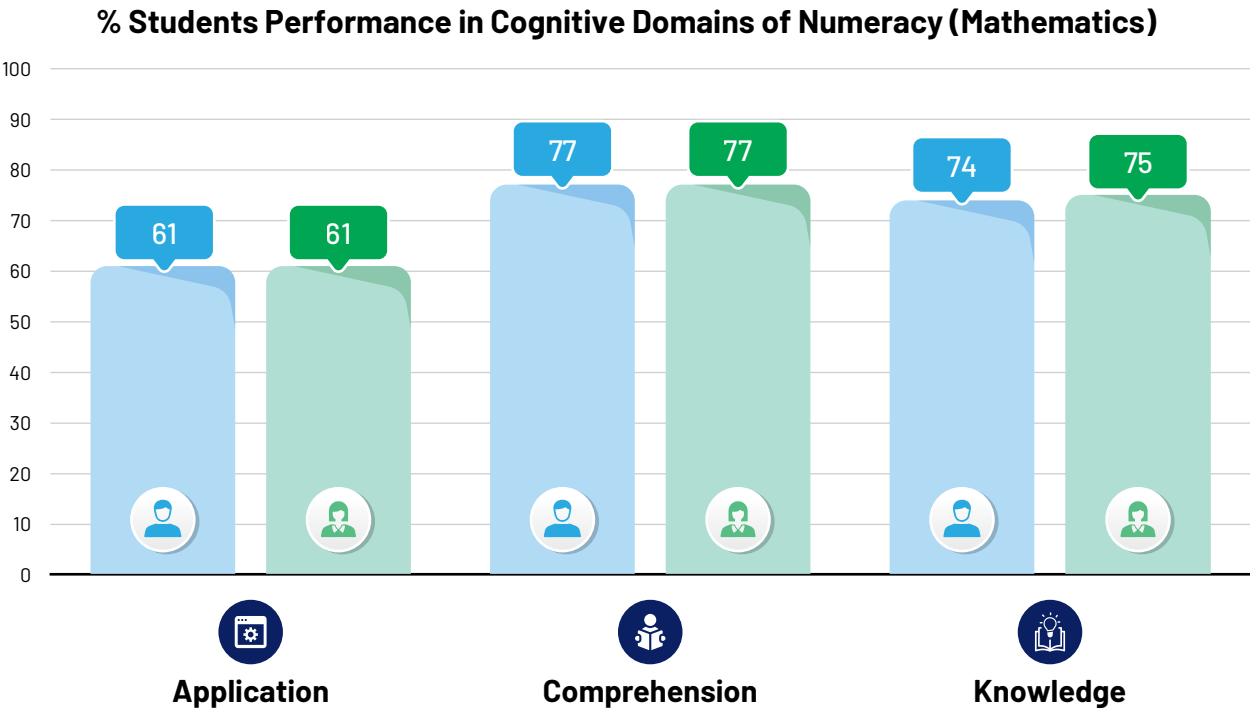


Findings show that performance of females and males is relatively similar across subjects. Female students scored 3% higher in Science. In Language subjects, the difference is higher; Females scored 4% higher in Urdu and English respectively.

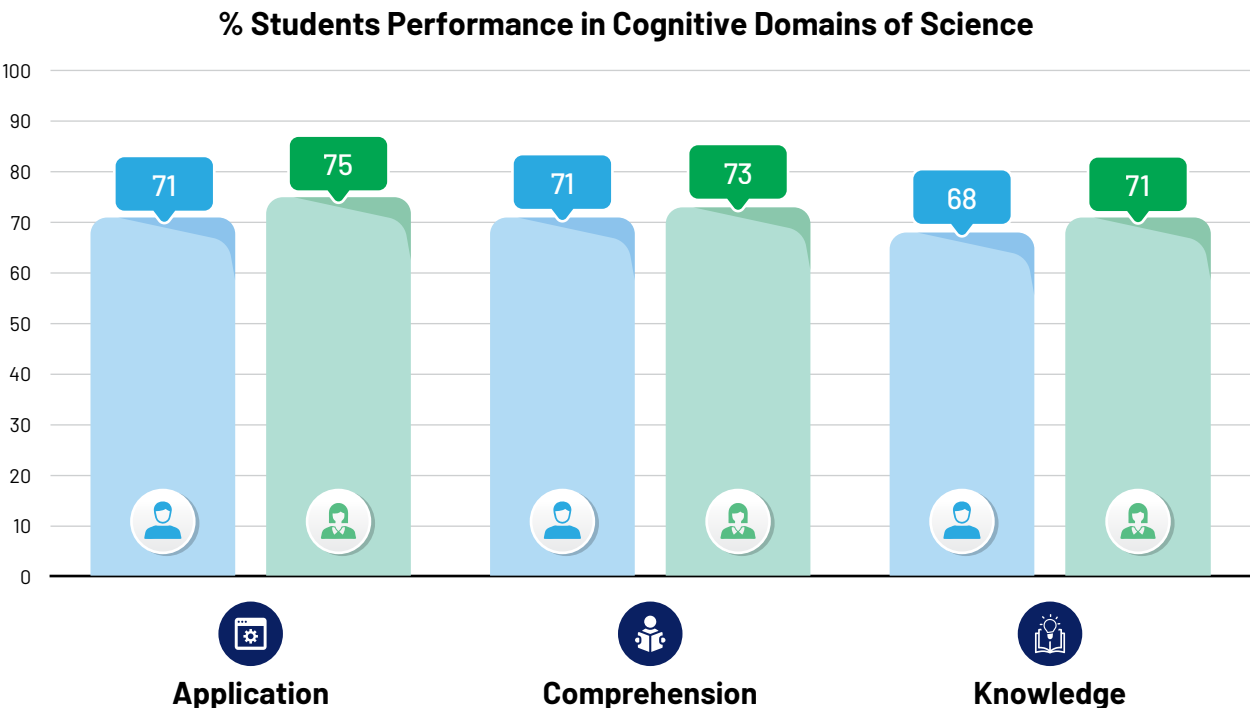
3.1.3 Performance under Targeted Cognitive Domains

Figure 5: Overall Students' Performance Based on Cognitive Domains

Figures below show the breakdown of scores achieved in key cognitive domains of Application, Comprehension and Knowledge for each subject.

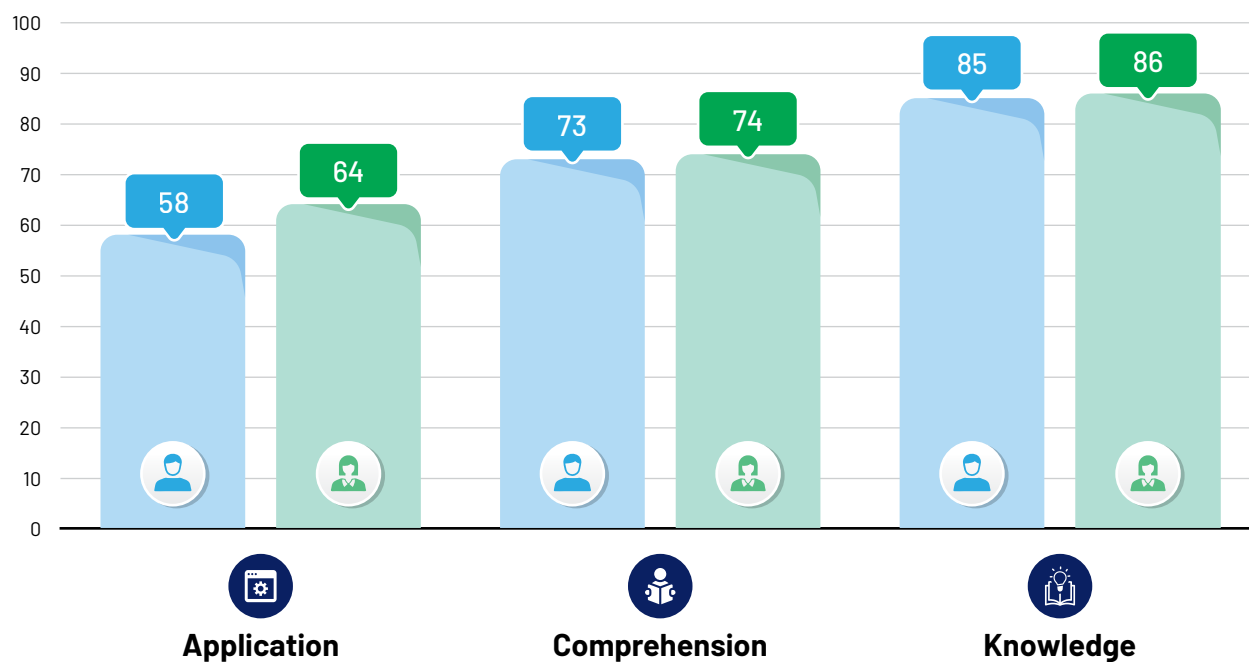


In Mathematics, the performance by females and males is relatively similar across all domains. Overall, students achieved the highest scores in questions testing comprehension.



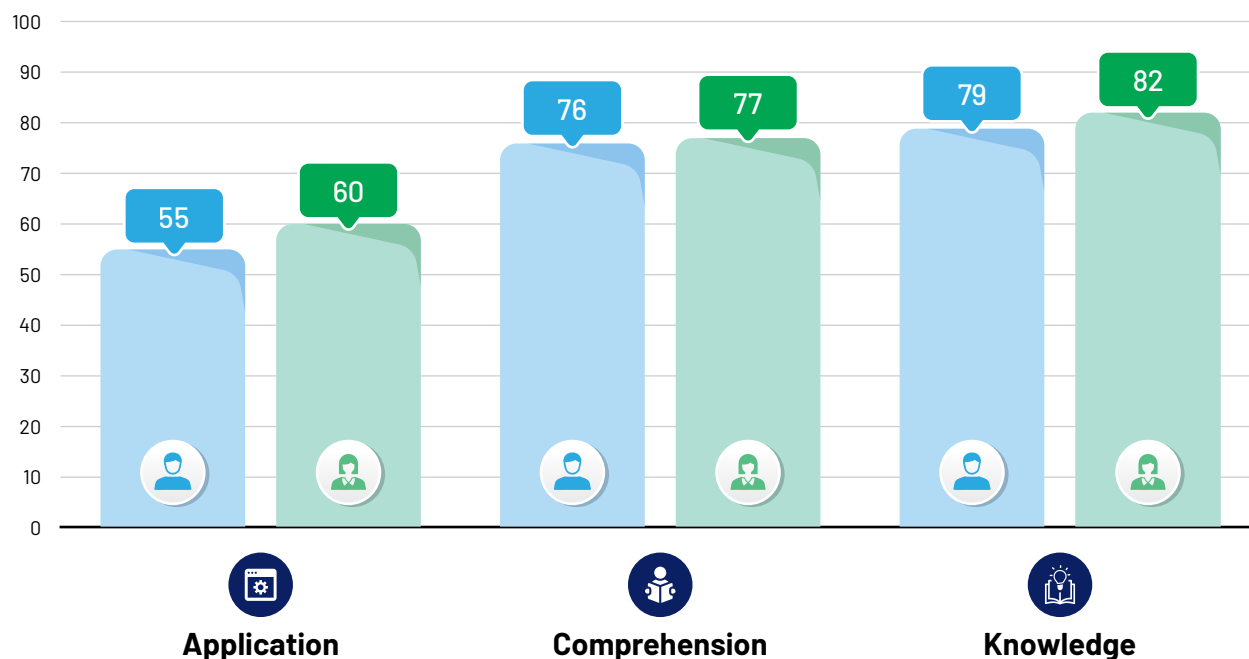
In Science, female students scored higher in all domains; 4% higher score is achieved in application questions and 3% higher increase in knowledge questions. Overall, students scored higher in application and comprehension questions compared to knowledge questions.

% Students Performance in Cognitive Domains of Literacy (Urdu)



In Urdu, performance of females was higher in all domains. The difference in scores is the highest in application questions; of about 6%. Overall, students achieved the highest scores in questions testing knowledge.

% Students Performance in Cognitive Domains of Literacy (English)



In English, performance of female students is higher in all domains. In application questions, the difference in scores is 5% while in other domains it is 1% (comprehension) and 3% (knowledge). Overall, the students achieved the highest scores in questions testing knowledge.

3.1.4 Topic-wise Performance

Table 6: Overall student Performance Achieved according to Topics

Grade 5 students were tested on numeracy and literacy skills, and understanding of Science concepts as per the division of the content areas into different standards/ components/ strands given in the National Curriculum 2006.

The topic wise performance of the students in the 2021 assessment is given below:

Subject/ Topic	2021
Numeracy (Mathematics)	
Number & operations	65%
Measurement & geometry	69%
Information handling	65%
Reasoning and logical thinking	70%
Literacy (English)	
Reading & thinking skills	77%
Writing	43%
Lexical	77%
Oral communication/Listening	88%
Literacy (Urdu)	
Reading	81%
Writing/ creative writing	51%
Lexical	74%
Listening	86%
Science	
Life sciences	79%
Physical science	67%
Earth and space science	74%



3.1.5 Item Type-wise Performance

The following Figures show the percentage of correct responses by the students in multiple-choice questions (MCQs) and constructed response questions (CRQs)¹⁵:

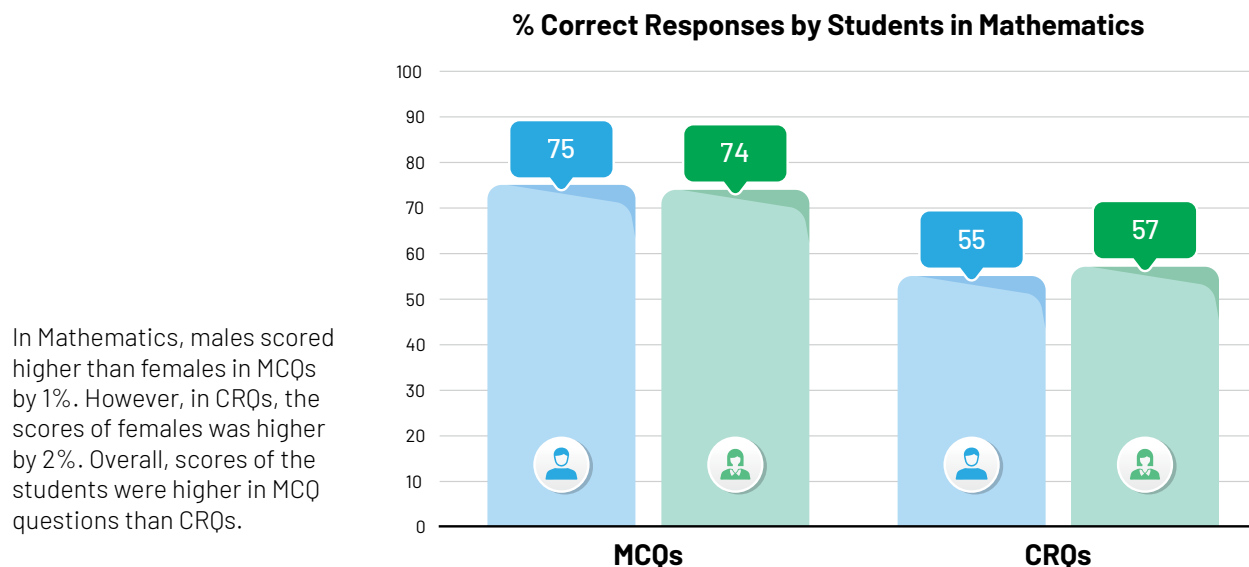
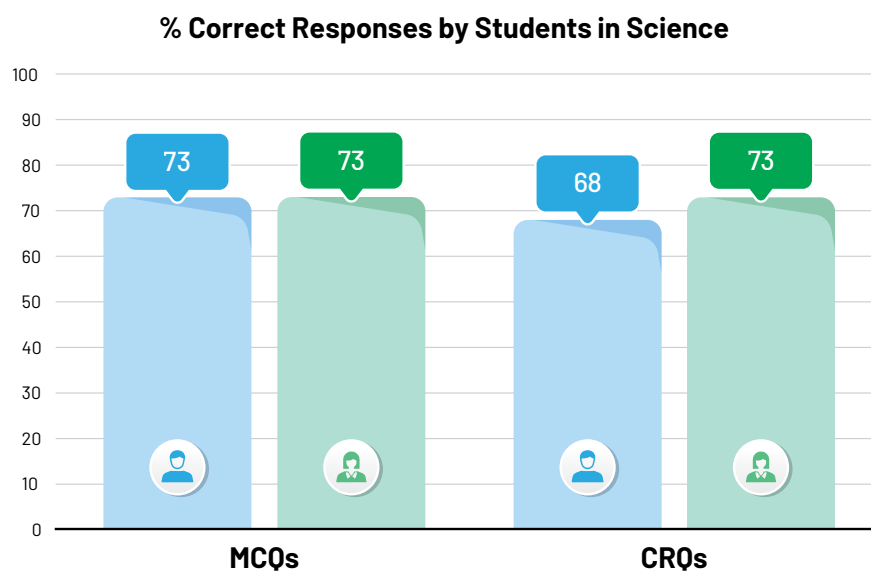
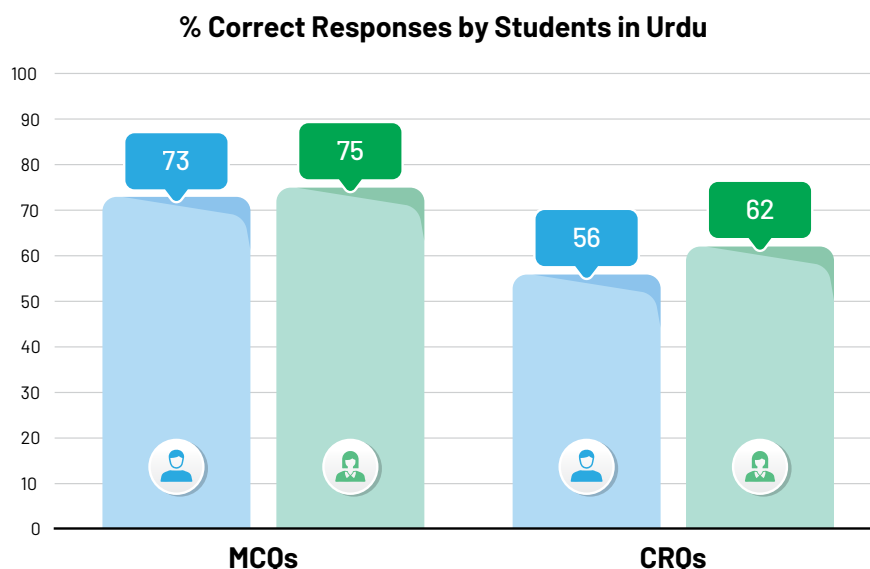


Figure 6: Overall Students' Performance According to Subject-wise Item Types

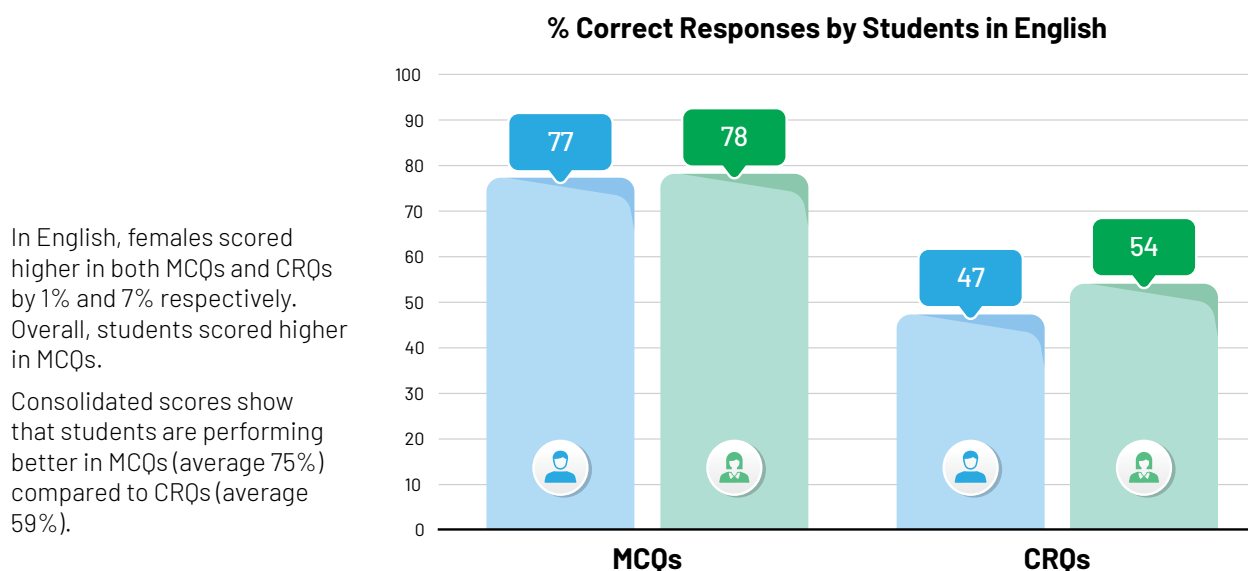


In Science, the scores in MCQs were same for all students. However, females scored 5% higher than males in CRQs. Overall, the scores of males were higher in MCQs questions whereas scores of females remained consistent for both question types.

¹⁵ MCQ stands for Multiple Choice Questions and CRQs stands for Constructed Response Questions.



In Urdu, females scored higher in both MCQs and CRQs by 2% and 6% respectively. Overall, scores of the students were higher for MCQs.



In English, females scored higher in both MCQs and CRQs by 1% and 7% respectively. Overall, students scored higher in MCQs.

Consolidated scores show that students are performing better in MCQs (average 75%) compared to CRQs (average 59%).

3.1.6 Performance in Reading Fluency

Reading fluency is gaining new recognition as an essential element of every reading programme, especially for students who struggle with reading. Keeping in view the critical need to build reading skills in students and make them independent readers, the LSA 2021 has assessed Grade 5 reading fluency skills.

Reading fluency assessment has been carried out in Urdu and English. It focuses on two components:

1. Rate measured as word per minute (WPM)
2. Accuracy: Word-reading accuracy refers to the ability to recognize or decode words correctly

To assess reading fluency, the student was given a paragraph to read, and the test administrator recorded the number of words read by the child in a minute. In addition, some words were highlighted in the paragraph to assess the accuracy (correct pronunciation).

Reading fluency is calculated by taking the total number of words read in one minute and subtracting the number of errors:

One-Minute Reading

$$\text{Total Words Read} - \text{Errors} = \text{Words per minute}$$

According to Urdu reading standards developed under the Pakistan Reading Project (PRP), at Grade 5 level, a student should read text at a rate of 100 to 140 correct words per minute.¹⁶

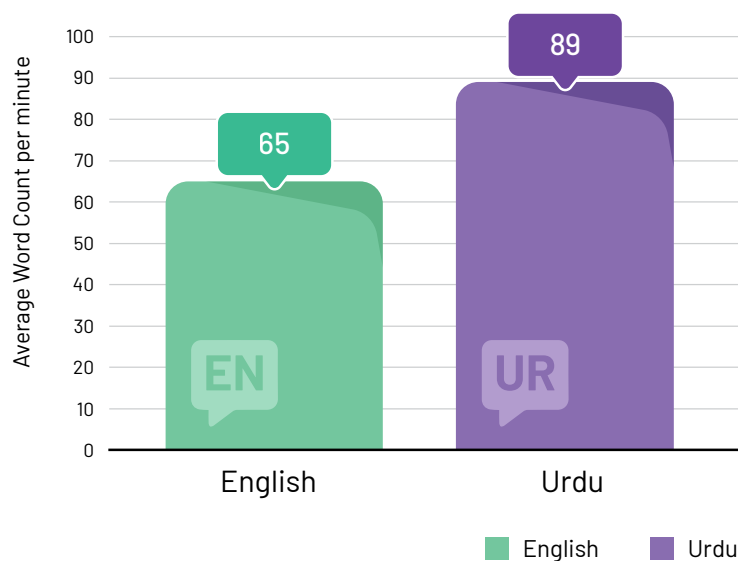
Similarly, under the reading competency of the Single National Curriculum (SNC) for Urdu, one of the learning outcomes states that students should be able to “read with accuracy at least 100 words per minute.”¹⁷ For native English speakers, the rate is 100 to 150¹⁸ words per minute whereas the pilot study informed that in Punjab, the rate for English (WPM) is falling between 40 and 80¹⁹.

Figure 7: Average Student Scores Achievement in Reading Fluency

Average % Score achieved for Reading Fluency in Languages

The following figure shows the average word count per minute for languages (i.e. English and Urdu).

In Urdu, the average word count achieved by students is 89 while for English the average word count is 65.



¹⁶ SRP. (2015). 'Reading Performance Standards and Compliance: ECE to Grade 5' – Urdu Reading (2015). Pakistan Reading Project and Sindh Reading Programme (SRP) by USAID and Government of Sindh

¹⁷ MOFEPT (2020). Single National Curriculum (SNC) 2020 – Urdu. Page No. 39

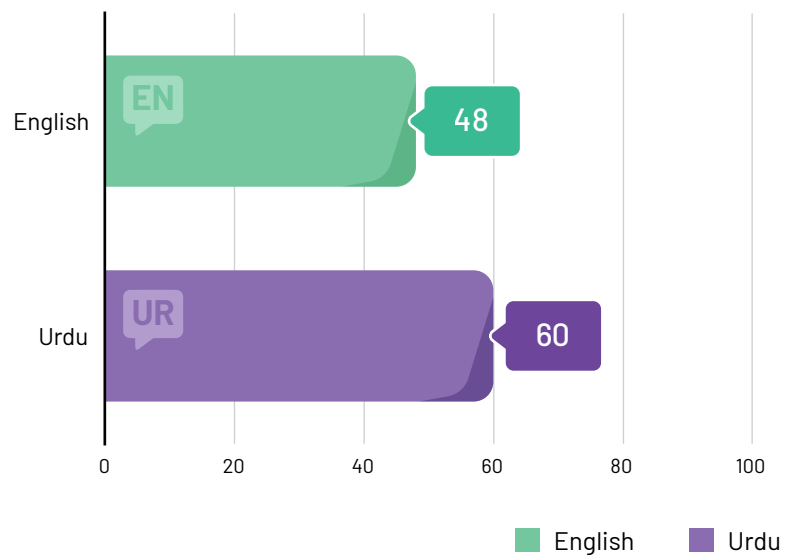
¹⁸ Rasinski, T. & Padak, N. (2005). 3-Minute Reading Assessments. New York, NY: Scholastic Inc.

¹⁹ PEC (2020). 'Large Scale Assessment – Item analysis report 2019-20'. The Third Punjab Education Sector Project, Technical Assistance, Cambridge Education. In collaboration with the Punjab Examination Commission (PEC), 2020.

Figure 8: Performance of Students in Reading Fluency per Curriculum Benchmarks

% scores of students on words read per minute

This figure shows the percentage of students who read 100 words or above per minute in Urdu, and 65 words or above per minute in English, as defined in SNC.



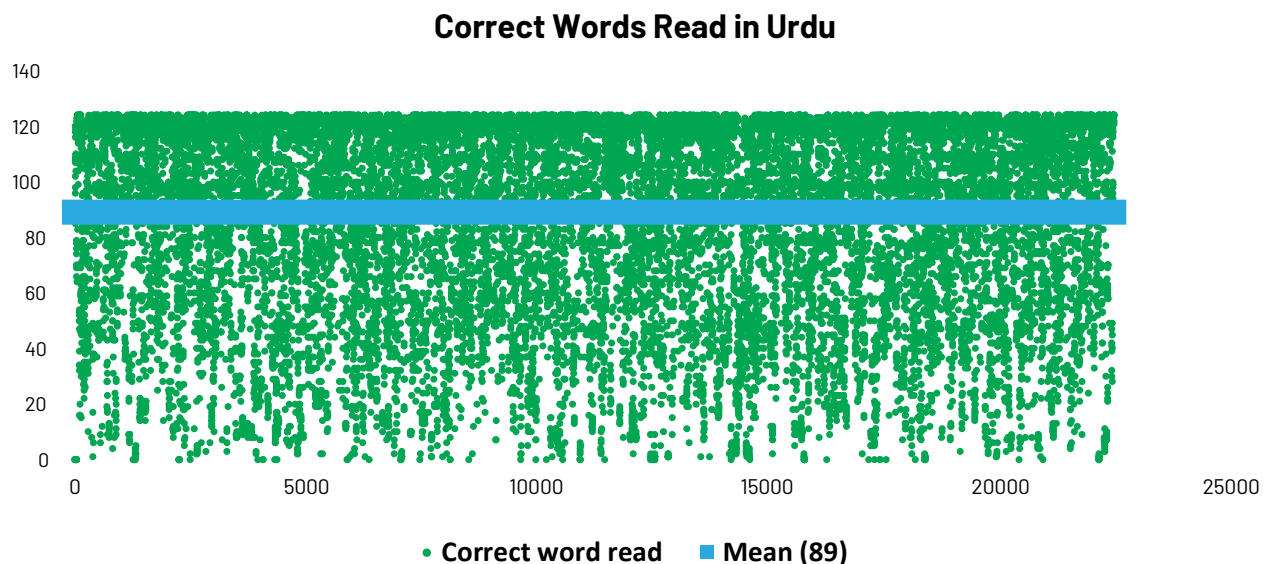
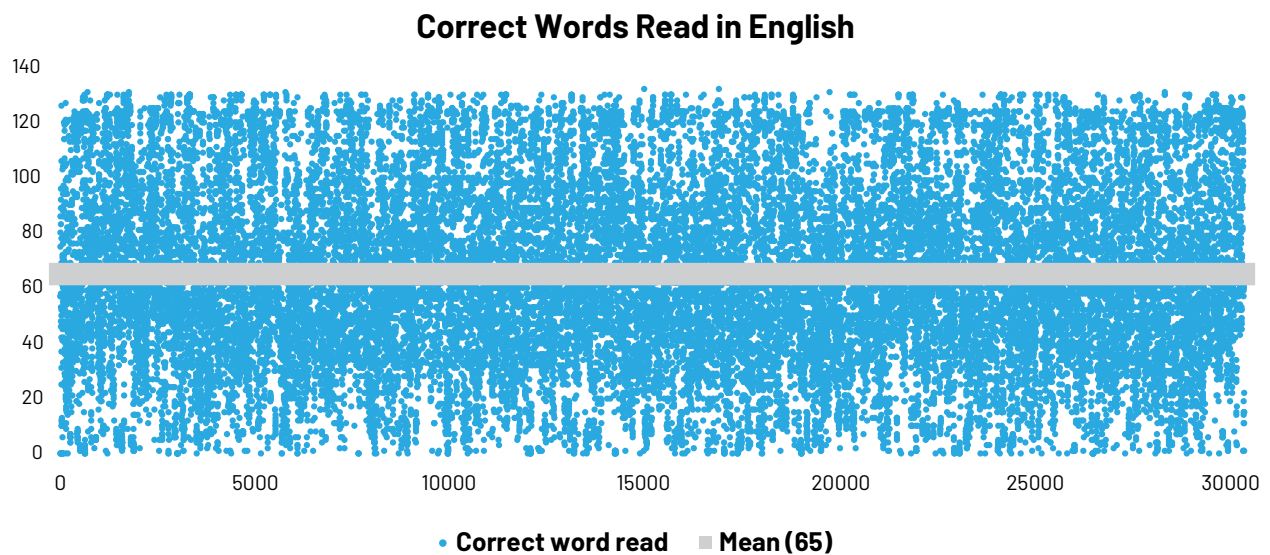
The table below and Figure 9 provide an overview of reading fluency.

Table 7: Students performance in reading fluency

Reading Fluency		
Words Per Minute	English	Urdu
Less than 10	3%	2%
(11 – 20)	4%	2%
(21 – 30)	5%	3%
(31 – 40)	9%	4%
(41 – 50)	10%	5%
(51 – 60)	12%	6%
(61 – 70)	12%	6%
(71 – 80)	11%	7%
(81 – 90)	8%	7%
(91 – 100)	8%	10%
(101 – 110)	5%	9%
(111 – 120)	5%	13%
(121 – 132)	8%	27%

Figure 9: Students Reading Correct Words per Subject

The given scattered plots below show the words that were correctly read by the students. Each scatterplot shows how many students are above and below mean score.



Both Figures indicate a mixed performance by students. The mean scores indicate that students on average read 89 words correctly in Urdu compared to English, where only 65 words were read correctly. It is also important to note that there are many students who could not read even one word correctly (secured 0 marks). This number of students is higher in English when contrasted with Urdu.

Table 8: Reading Accuracy of Specified Difficult Words

In the reading fluency assessment instrument, 10 words were specified as 'difficult' in the reading paragraphs. The table below provides the performance of students in reading difficult words in the two language subjects:

Percentage Reading Accuracy of Specified Difficult Words		
Number of Words	English (%)	Urdu (%)
Zero	6	5
1 - 3	27	10
4 - 6	35	23
7 - 9	26	44
10	6	18

The table shows that only 18% of students can read all 10 specified/difficult words with correct pronunciation in Urdu and 6% in English. Only 38% of the students can read half (5 or 50%) of the specified/difficult words of Urdu and 68% of the students can read half (5 or 50%) specified/difficult words in English.

3.1.7 Performance in Listening Skills

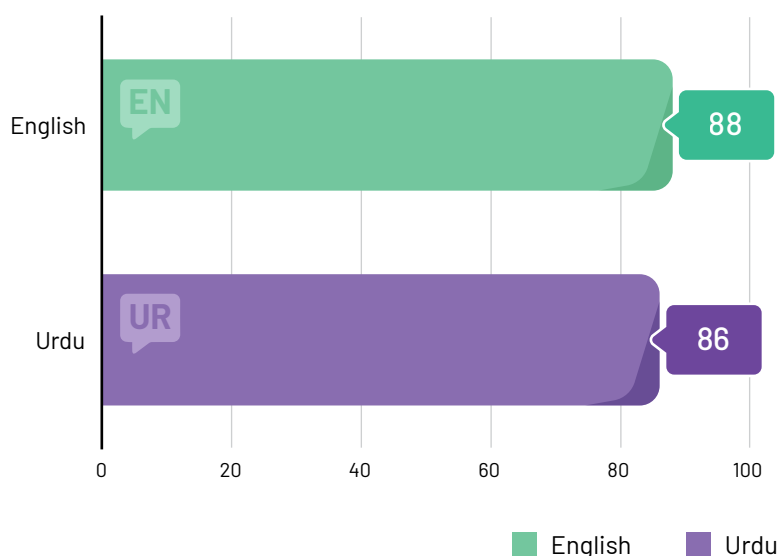
Listening is an important component of learning. A student's ability to actively listen has a major impact on building communication skills needed inside and outside of the classroom.

Through the LSA, an initiative to assess listening skills of the students was undertaken. The unavailability of needed resources caused some limitation in the standardization process. However, in the assessment the given passage was read out by the teacher in the presence of the test administrator followed by the MCQs assessment. Students were required to listen and understand the text and complete the assessment accordingly.

Figure 10: Performance of Students in Listening Assessment

The figure shows the performance of students in both English and Urdu in terms of correct responses:

% scores of students who responded correctly on listening assessment



3.2 Overall Teacher Performance

3.2.1 Gender-wise Performance

Figure 11: Overall Mean Scores Achieved by Teachers

The performance of male and female teachers is relatively similar. Male teachers scored 1% higher than female teachers.

Overall Mean % Scores of Teachers

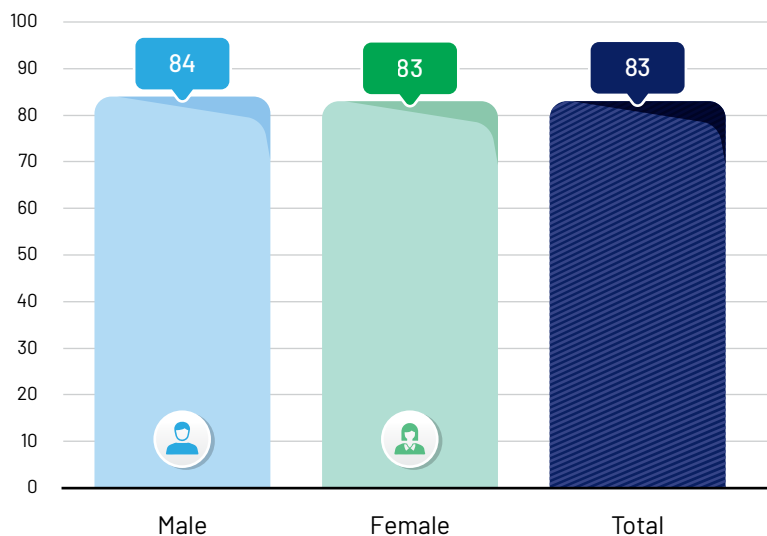
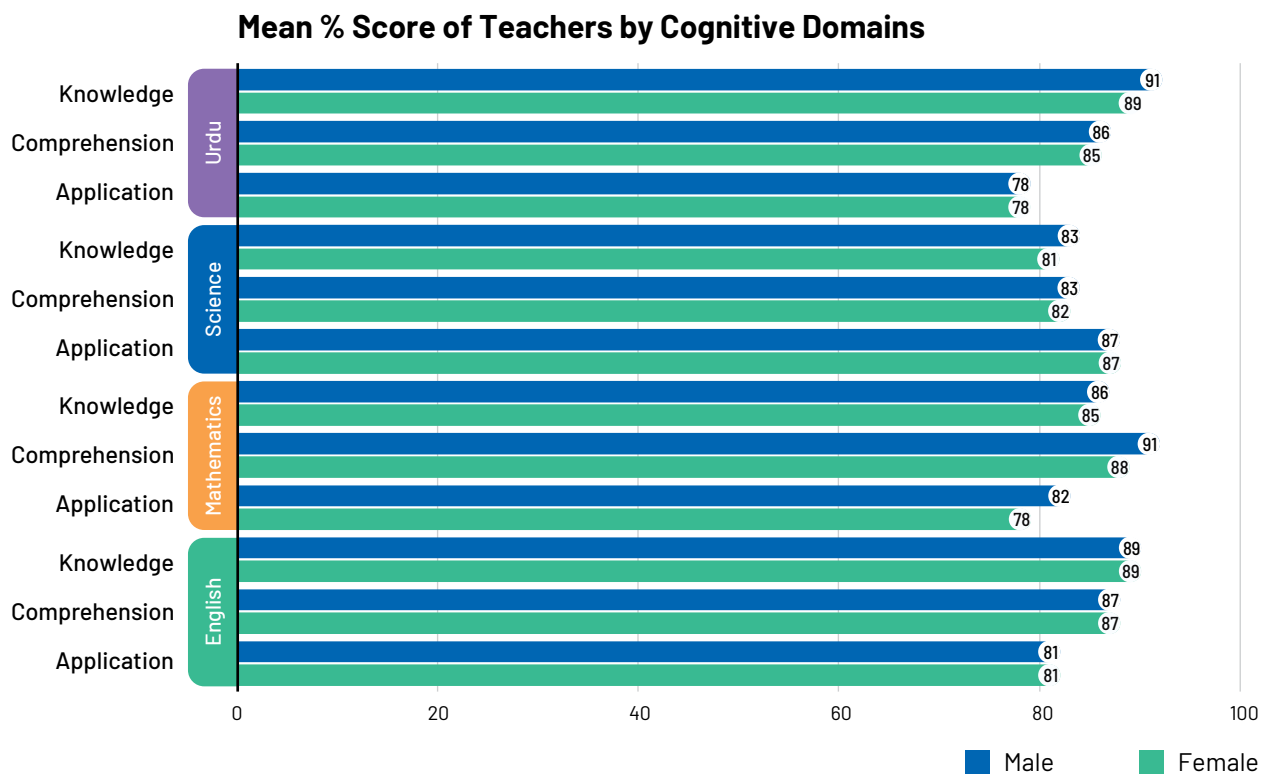


Figure 12: Overall Teachers' Performance Based on Cognitive Domains



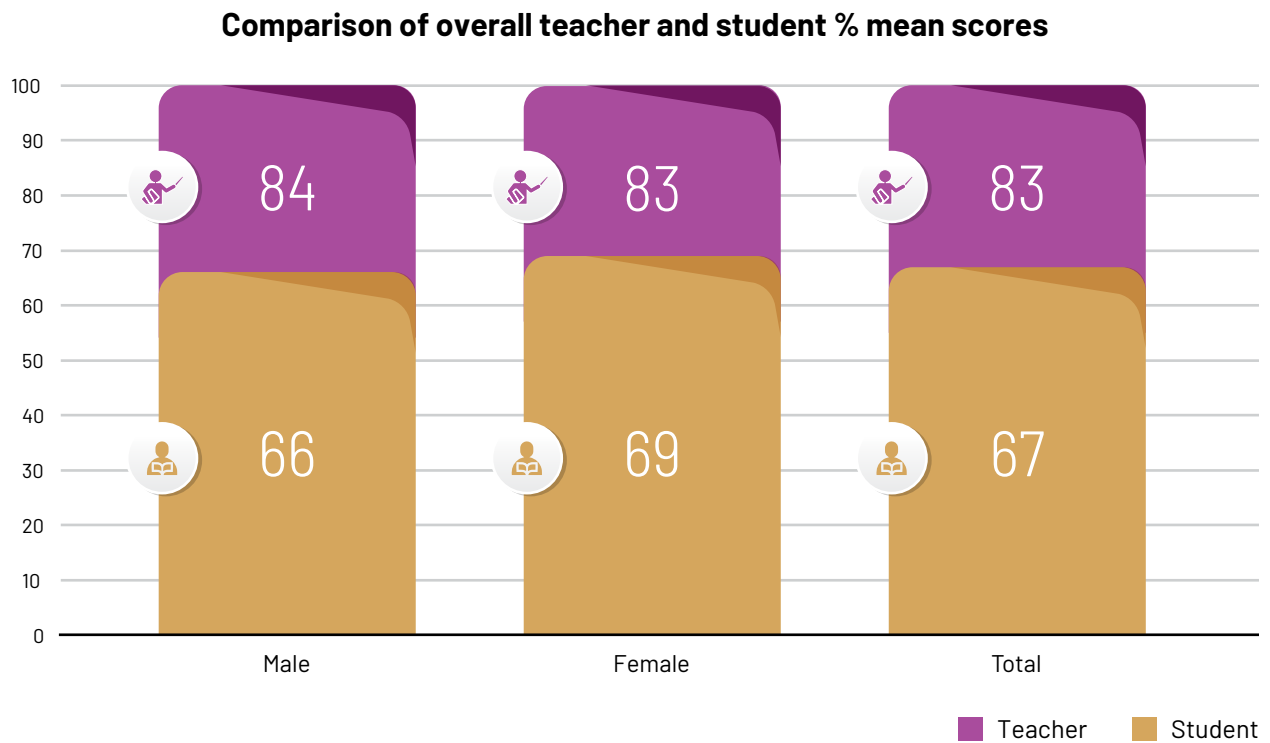
Overall, teachers scored the highest in knowledge-based questions across all four subjects. In comparison scores were lower in application-based questions. Slight differences of 1-2% were recorded between scores of males and females teachers.

3.3 Comparative Scores: Performance of Teachers and Students

3.3.1 Overall Gender-wise Performance

Figure 13: Overall Comparison of Mean Scores Achieved by Teachers and Students

The figure below shows the comparative performance of both teachers and students in the assessment:



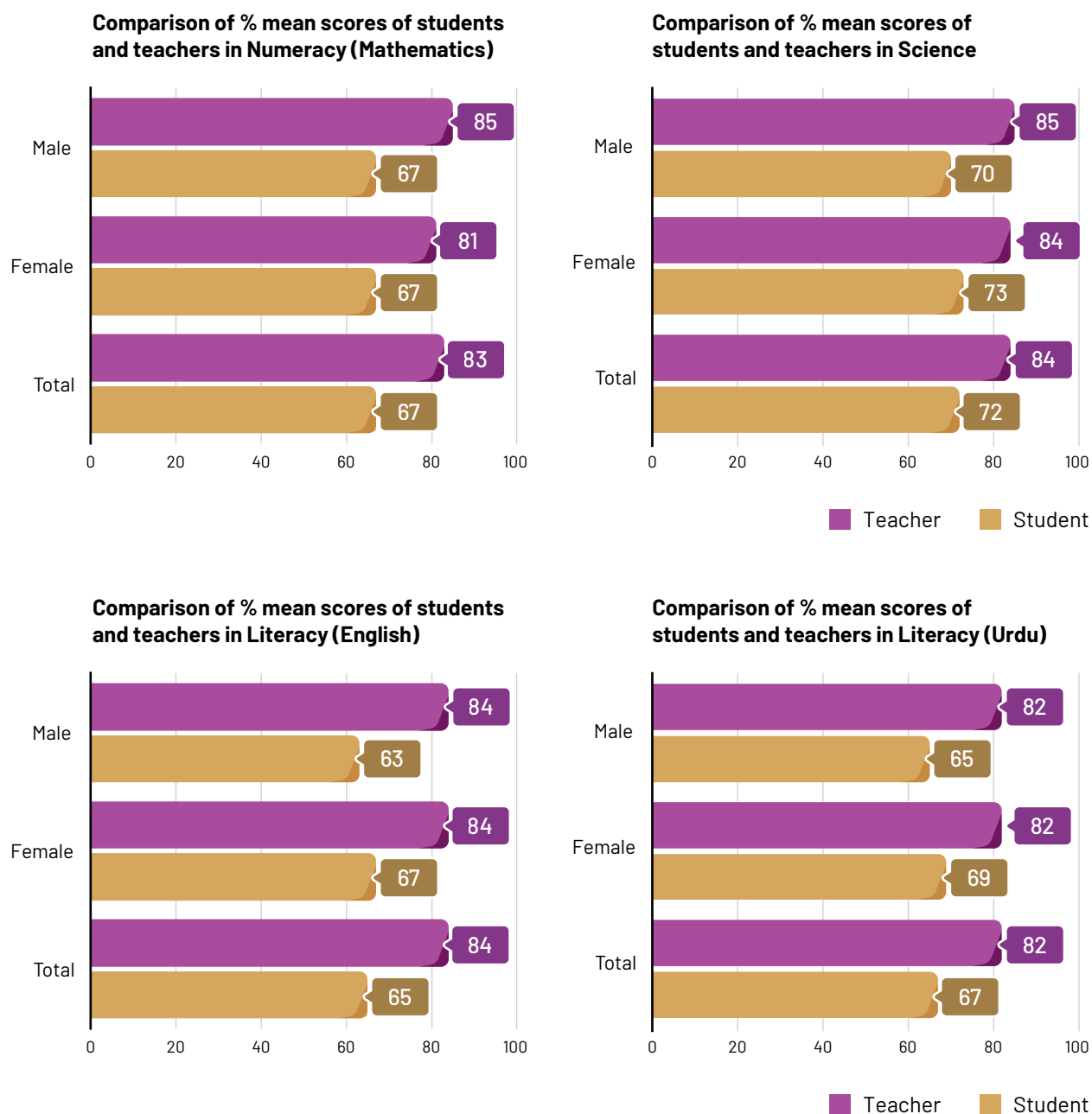
Results show that teachers' overall performance is higher than that of the students by 16%. The difference between scores of male teachers and students is 18% compared to the difference between scores of female teachers and students which is 14%.



3.3.2 Subject-wise Teacher and Student Performance

Figure 14: Overall Subject-Wise Comparison of Mean Scores Achieved By Teachers and Students

The Figure below shows the subject-wise mean percentage scores of teachers and students under the curriculum of English, Urdu, Mathematics and Science.



Results show that the difference in scores across all four subjects is between 12-19%. The difference in student and teacher scores is the highest in English at 19% and lowest in Science at 12%.

3.4 Comparative Scores: Performance of SED, PEF and PEIMA Administered Schools



3.4.1 Overall Students' Performance in SED, PEF and PEIMA Schools

The following figure shows the overall mean score percentage of SED, PEF and PEIMA administered schools:

Figure 15: Overall Students' Performance in SED, PEF and PEIMA Administered Schools

Overall Mean % Scores of Students in SED, PEF and PEIMA Schools

Results show a difference of 3% between SED and PEF, and 7% between SED and PEIMA. The mean score of students from PEIMA schools is also 4% lower than PEF.

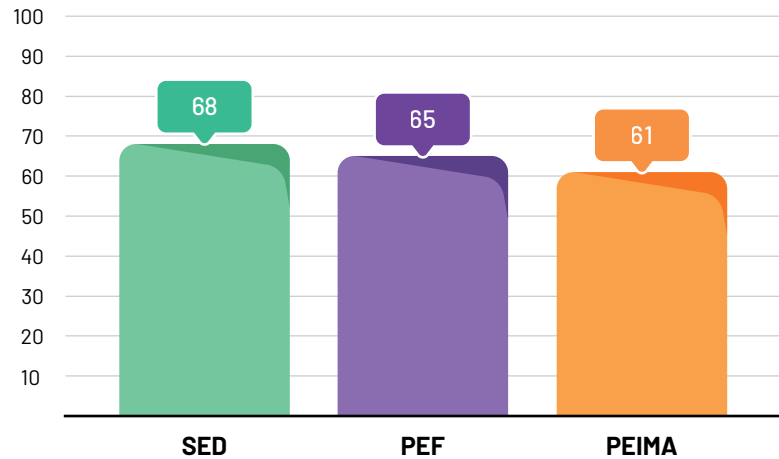
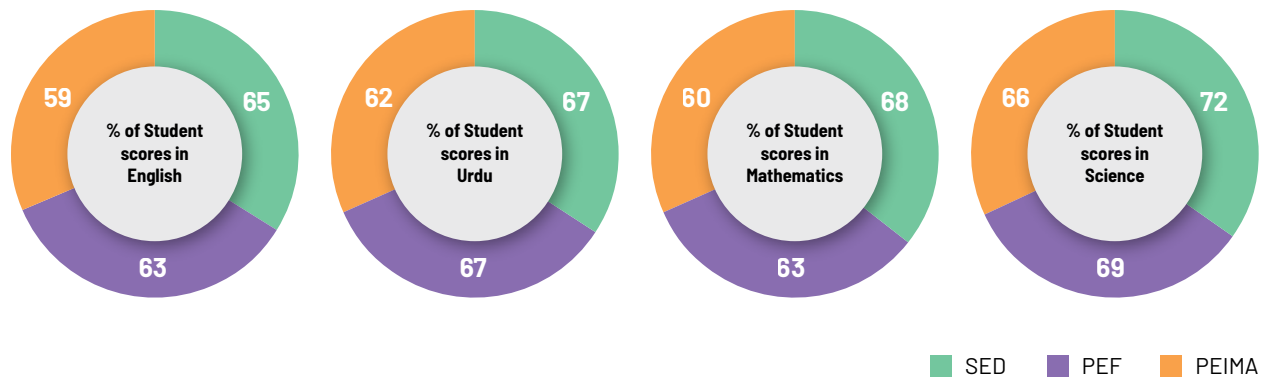


Figure 16: Subject-wise Students' Performance in SED, PEF and PEIMA Schools



The Figure above gives the students learning performance in all four subjects—Mathematics, Science, English and Urdu. The average difference between SED and PEF schools is 2.5% whereas with PEIMA schools, the average difference becomes 8.7%. Overall, PEIMA schools, showed the lowest scores in all subjects, especially in Science.

3.4.2 Overall Teacher Performance in SED, PEF and PEIMA Schools

Figure 17: Overall Teachers' Performance in SED, PEF and PEIMA Administered Schools

Results show that teachers of SED schools have a better understanding of subject knowledge than teachers of PEF and PEIMA schools.

Overall Mean % Scores of Teachers in SED, PEF and PEIMA Schools

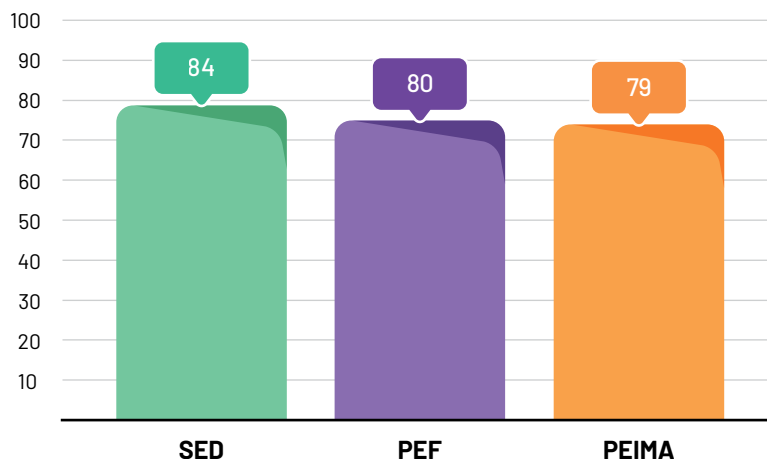
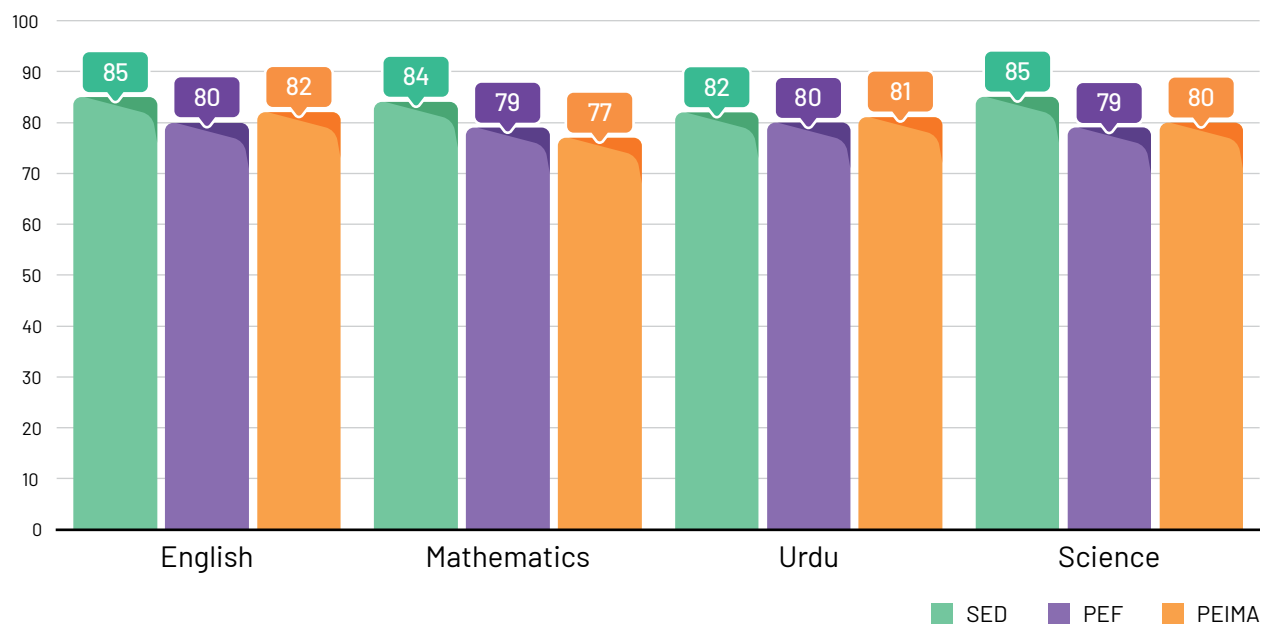


Figure 18: Subject-wise Teachers' Performance in SED, PEF and PEIMA Schools

% Subject-wise Mean Scores of teachers



Findings over subject-wise performance show that teachers from SED schools have a higher mean scores in all four subjects—Mathematics, Science, English and Urdu compared to teachers of PEF and PEIMA schools. The scores of PEF and PEIMA are the lowest in subjects of Science and Mathematics respectively.

3.5 Relationship between Student Scores and Individual Attributes

Students' scores have been regressed on several variables of interest to see the relationship between their performance and factors such as schools, teachers, head teachers and parent's background.

Findings from these regressions are outlined below:

3.5.1 Teachers and Teaching Practices

Research highlights that students performance is affected by the quality of teaching. To understand this relationship, student scores are regressed on key areas of interest of teachers which as followed.

- Academic qualifications
- Professional qualifications
- Teaching experience
- Participation in Continuing Professional Development (CPD) programs
- Gender impact
- Classroom teaching practices
- Classroom practices - multi-grade teaching
- Teacher behaviour



Findings from these regressors are outlined in the sub-sections below.



ACADEMIC QUALIFICATION

It was found that an increase in the qualification by one level, raised students' scores by 2.89 points. Therefore teachers' academic qualification has a significant positive effect on students' academic performance.

Result

The children taught by teachers having higher academic qualification showed better learning achievement than students taught by other teachers.



PROFESSIONAL QUALIFICATION

It was found that an increase in teacher professional qualification by one level, raised students' scores by 1.369 points. This indicates a significant positive relationship between teachers' professional qualification and students' academic performance.

Result

The children taught by teachers having a better professional qualification showed better learning achievement than students taught by other teachers.



TEACHING EXPERIENCE

For every additional year of teaching experience, students' scores dropped by 0.065 points. This indicates an insignificant negative relationship between teachers' teaching experience and students' academic performance.

Result

The children taught by teachers having more teaching experience showed lesser learning achievement than students taught by less experienced teachers.



PARTICIPATION IN THE CPD PROGRAMMES

Students of those schools where teachers participated in the CPD programme regularly scored 4.7 points higher than schools where participation is less regular.

Result

The teachers' regular participation in capacity building training programme CPD has a significant effect on students' learning achievements.



GENDER VARIABLE IMPACT

Test results of male teachers in the sample were compared with those of female teachers, keeping all other variables constant. Students taught by male teachers performed slightly better than those taught by female teachers and scored 0.087 points higher. Results show that gender's effect on students' academic performance is insignificant.

Result

Male and female teachers' performance is almost equal and their respective male and female students also show an almost equal academic performance.



CLASSROOM TEACHING PRACTICES

The students who were taught by using any of the 9 given practices scored 0.408 more than those students who are not taught by using these practices. The 9 classroom practices given below had a positive and significant effect on students' learning achievements:

- i. Use of Whiteboards
- ii. The Activity-based Teaching-Learning Process
- iii. Outdoor Activities
- iv. Teacher Asking Questions
- v. Students Asking Questions
- vi. Teacher Responds to Student's Question
- vii. Homework Checking
- viii. Identifying Mistakes and Feedback for Improvement
- ix. Teacher as a Problem Solver

Result

Above mentioned classroom practices—formative assessment, Audio-visual (AV) aids, teaching strategies and teachers' supportive attitude has a positive and significant effect on students' learning achievements.



CLASSROOM PRACTICES - MULTI-GRADE TEACHING

Students in schools in which multi-grade teaching is practiced scored 2.52 points lower than schools where this is not practiced. Therefore multi-grade teaching has a negative and significant effect on students' learning achievements.

Result

Multi-grade teaching has a negative and significant effect on students' learning achievements.



TEACHERS BEHAVIOUR

Students in schools where teachers are friendly and encouraging scored 6.2 points higher than schools in which the behaviour of the teacher is not friendly. Teachers' friendly behaviour has a significant positive effect on students' learning achievements.

Result

Students attained higher scores whose teachers adopted friendly behaviour while teaching.

3.5.2 School Facilities and Related Factors

Students' performance is significantly affected by the quality of the school environment. To understand this relationship, students' scores are regressed on key areas of interest:

- i. Provision of basic facilities (electricity, water and washrooms)
- ii. Classroom resources
- iii. Opportunities to participate in co-curricular activities
- iv. Social involvement of students/interactions between students
- v. Student absenteeism

Findings from these regressors are outlined in the sub-sections below.



PROVISION OF BASIC FACILITIES

Schools equipped with basic available and functioning facilities (electricity, water, and washrooms) served as in improved student score by 4.97 points higher than schools in which these facilities are missing or dysfunctional.

Result

Provision of basic facilities (electricity, water, and washrooms) in the schools has slightly positive effect on students learning achievement.

It was found that about 97% schools have electricity, water and functional washrooms.



CLASSROOM RESOURCES

The availability of resources in the schools including furniture, language kit, science kit, mathematics kit, sports facility and library do not lead towards higher score than schools without these resources.

Result

The availability of resources in the schools including furniture, language kit, science kit, mathematics kit, sports facility and library has insignificant effect on students learning achievement.

It was found that about less than 50% schools have the resources mentioned above.





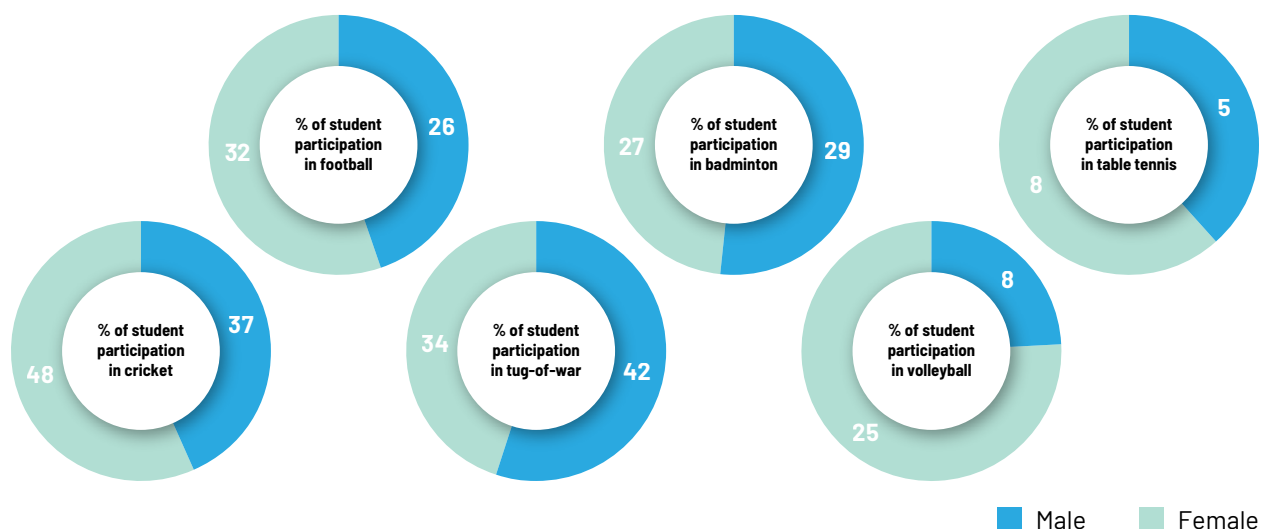
OPPORTUNITIES TO PARTICIPATE IN SPORTS

Students in schools where they are given opportunities to participate in different types of co-curricular activities scored 2.38 points higher than schools where these activities are not organized. Provision of co-curricular activities has positive and significant effect on students' learning achievements.

Result

Students' participation in co-curricular activities has significant positive effect their educational achievements.

The findings reveal that only the following co-curricular activities are conducted and played by the students:



SOCIAL INVOLVEMENT OF STUDENTS/INTERACTIONS BETWEEN STUDENTS

The students of the schools having friendly relationship with each other and play and help each other, scored 0.506 points higher than schools where students have less social bonding. The friendly relationship with each other has a positive but insignificant effect of students' learning achievements.

Result

The social involvement of students with each other also positively contributes in their educational achievements.



STUDENT ABSENTEEISM

Students who are regular scored 0.775 points higher than students of the schools where absenteeism is higher. The most common reason for taking off from school is sickness and to take care of siblings.

Result

Students who attended their classes regularly scored higher than the ones that were more absent.



3.5.3 School Leadership

The leadership provided in the school specifically the role of the head teacher, the school council and other officials are important contributors to students' performance. To understand this relationship, students' scores are regressed on key areas of interest:

- i. Mentoring of teachers by Head teacher
- ii. Engagement of parents by Head teacher
- iii. Classroom visits by AEOs
- iv. Lesson planning
- v. Local languages used in teaching
- vi. Use of curriculum and teacher guides
- vii. Practice of corporal punishment
- viii. Organised co-curricular activities
- ix. Utilisation of NSB funds
- x. Engagement of school councils in learning decisions

Findings from these regressors are outlined in the sub-sections below.



MENTORING OF TEACHERS BY HEAD TEACHER

Students in schools where Head teachers spend more than 50% of their time in helping their teachers scored 1.57 points higher than schools where this percentage is less than 50%. Therefore, help of head teachers to their teachers has an insignificant slightly positive effect on students' academic performance taught by the teachers.

Result

The involvement of head teacher in helping their teachers has a slightly positive effect on students learning achievement.



ENGAGEMENT OF PARENTS BY HEAD TEACHERS

Head teachers that spend more than 50% of their time in engaging parents scored 0.941 points higher than schools where this percentage is less than 50%. Therefore, in schools where Head teachers spend more than 50% their time in engaging parents has insignificant slightly positive effect on students' academic performance.

Result

The involvement of head teachers in engaging parents has slightly positive effect on students learning achievement.



CLASSROOM VISITS BY AEOs

The schools where AEOs observe classrooms twice a month scored 3.97 points higher than schools where it is lesser. Therefore, AEO's visits in schools where these are twice in a month has a significant effect on students' academic performance.

Result

The AEOs visits to school has significant positive effect on students' academic achievement.



LESSON PLANNING

Students taught by teachers who plan lessons before teaching scored 1.63 points higher than students taught by other teachers. Lesson planning has a significant effect on students' academic performance.

Result

The teachers' lesson planning before teaching significantly improves students' learning achievements.



LOCAL LANGUAGES USED IN TEACHING

The students of the teachers who used local languages in teaching scored 0.45 points less than the schools where teachers do not teach in local languages. However, this negative effect is insignificant.

Result

The lessons delivery in local languages has negative to some extent but an insignificant effect on students learning achievements.



USE OF CURRICULUM AND TEACHER GUIDES

Students of schools where Curriculum and teacher guides are available and used by the teachers scored 9.8 points higher than schools where these documents are not available or not used.

Result

The usage of teachers' guides and understanding of the curriculum has a significant positive effect on students learning achievements.



PRACTICE OF CORPORAL PUNISHMENT

The students of the schools where corporal punishment is not given scored 6.931 points higher than the schools where corporal punishment is given.

Result

The results showed that the avoidance from corporal punishment helps students to increase their score significantly.



ORGANISED CO-CURRICULAR ACTIVITIES

The schools where co-curricular activities are organized on a monthly basis scored 4.49 points higher than schools where such activities are not organized.

Result

Co-curricular activities improve students' learning achievements.





UTILISATION OF NSB FUNDS

Students of those schools where School Council funds/grants/NSB fulfil 75% needs of schools scored 4.84 points higher than students of schools where School Council funds/grants/NSB fulfil less than 75% needs of schools.

Result

Provision of School Council funds/grants/NSB has significant positive impact on students learning achievements.



ENGAGEMENT OF SCHOOL COUNCILS IN STUDENT LEARNING

The school council regularly discusses students' performance, teacher training, resources and co-curriculum activities scored 1.98 points higher than schools where no discussions are undertaken. The regular discussion of school councils on matters mentioned above has a positive to some extent but insignificant effect in determining students' learning achievement.

Result

The regular discussion of school councils on matters like students' performance, teacher training, resources and co-curriculum activities has positive but insignificant effect on students' learning achievement.

3.5.4 Parents' Engagement

Socio-economic conditions of students especially the background and economic factors have an impact on student performance. To understand the relationship of these factors, the students' scores are regressed on key areas of interest:

- i. Parents qualification
- ii. Source of income
- iii. Resources available at home
- iv. Study at home
- v. Perceptions on school practices related to inclusion and safety
- vi. Feedback on the school

Findings from these regressions are outlined in the sub-sections below.



PARENTS' QUALIFICATION

It was found that an increase in the qualification²⁰ of the father by one level, raised students' performance scores by 1.17 points and an increase in the qualification of the mother by one level raised students' performance scores by 0.93 points.

Result

Parents' education has significant effect on students' learning performance.

²⁰ Qualification refers to academic attainment such as Primary, Middle, Matric, Intermediate, B.A/BSc, M.A/MSc.



SOURCE OF INCOME

The role of fathers' income is a positive to some extent but insignificant determinant of students' assessment scores. The data revealed that the most common profession of students' parents (29%) is farming. It was also found that the students whose parents have an income range from Rs. 5000 to Rs. 40000 performed almost equally.



RESOURCES AVAILABLE AT HOME

It was found that the availability of basic resources²¹ at home raised students' scores by 0.409 points. The effect of availability of basic resources at home on students' learning achievement is positive but insignificant.

Result

The availability of basic resources at the home improves students' performance.



STUDY AT HOME

The data revealed that an increase in the time given by the students at home on studies by one hour, raised students' scores by 2.23 points. The effect of study at home has significant effect on students' learning achievements.

Result

The additional time given by the students to their studies for revisions of lessons at their homes improve their performance.



PERCEPTIONS ON SCHOOL PRACTICES RELATED TO INCLUSION AND SAFETY

Students and parents were asked a series of questions on safety and related inclusive practices.

Questions were asked over inclusiveness in the classroom such as any issues related to hearing, seeing and listening.

Resultantly, 85% of the students mentioned that they can see the board from a distance whereas 87% of the students mentioned that they can see the objects closer to their eyes like a book on a desk. 37% of the students also informed that they have a listening problem.

There is a need to assess eyesight for long or short-sighted for distance and provide support for students with listening issues.

On questions related to safety, 88% male and 91% female students said that they feel safe in the school which is endorsed by 94% of parents as well.



FEEDBACK ON THE SCHOOL

Table 6.1: Parent Suggestions for School Improvement

Parents were asked a series of questions to assess their level of satisfaction with the school. Results show that:

- 5% of parents are not satisfied with the school's performance. The most common reason given is the 'Deficiency of teachers' in schools.
- Less than 5% of the parents mentioned that their children are not given any homework.
- 42% of the parents further stated that their children are taking tuitions for additional support.

²¹ These resources refer to the availability of reading materials (religious books, general knowledge books, children's storybooks, and dictionaries), electronic devices (TV, mobile phones, and computer), own room and bicycle/motorcycle etc.

The following suggestions were provided for school improvement:

Table 9: Suggestions by parents for school improvement

Suggestions	Percentage of parents
Need to have a hard-working head teacher and decision-maker.	47%
Need for timely distribution of textbooks to the students	41%
Need for regular visits to be made by the education department.	34%
Need of engaging parents in school activities.	41%
Parents considered the school as a safe place for their children.	94%
Parents mentioned that children spend most of their time on watching TV and physical exercise	41%
Parents indicated that their children read books other than their textbooks.	65%
Parents identified that the most common reason for taking off from school is the child's illness which is same as given by 88% of students.	84%

3.5.5 Teachers' Feedback

Teachers were asked a series of questions to understand their perceptions on key areas related to the school system that affect student performance.

The variables analysed include:

- Textbooks
- Feedback on the AEOs visits
- Lesson planning
- Teaching practices used in the classroom
- Parents participation
- Involvement in school administration
- Teaching subjects of Science, Mathematics, English and Urdu





TEXTBOOKS

Table 10: Feedback on Currently Taught Textbooks

Teachers were asked to provide their feedback on current textbooks being used in Grade 5 classrooms. The responses are given in the table below.

The content in the books is given	Not at all	Little bit	Most of it	Completely
according to the children age and class	5%	13%	50%	29%
in simple language	5%	13%	47%	32%
with interesting activities	6%	23%	44%	25%
with appropriate exercises	5%	8%	42%	42%
in inappropriate font size	5%	10%	34%	47%
with local examples	7%	23%	43%	24%

50% of teachers agree that the textbooks are according to the age and class-level. Less than 50% are satisfied over the language and content.



FEEDBACK ON THE AEOs VISITS

Table 11: Frequency of AEOs Visit

Under the digital CPD programme (i.e. distant learning school-based training programmes) of QAED, AEO's are to conduct two classroom visits per month. Responses of teachers over the frequency of these visits are that:

Frequency	Percentage of AEOs
Once in a month	22%
Twice in a month	50%
Once in two months	2%
Do not visit the class room	8%

No uniform pattern of school visits was observed by AEOs.

During the visit teachers stated that, the behaviour of AEOs is generally positive; 66% stated that behaviour is very friendly while 10% stated it is very strict.

Further feedback from the AEOs visit is given below:

Table 12: Feedback on AEOs Visit

AEO's visit	Percentage of responses			
	Always	Mostly	Rarely	Never
AEOs provide feedback after observation	50%	24%	3%	8%
The feedback given by AEOs helps improve teaching	45%	30%	2%	7%
AEOs conduct monthly forum meeting	46%	25%	5%	9%

50% of teachers stated that they receive feedback from AEOs after each observation visit. Majority of teachers are positive over the usability of this feedback in improving teaching.



LESSON PLANNING

Teachers were asked about the development and use of lesson plans in their teaching. Results show that 60% of teachers plan their lessons daily before they teach.

- 97% of the reported teachers plan their lessons according to SLO.
- 96% of the reported teachers use students' record while planning their lessons.

According to teachers they take support in lesson planning by:

Table 13: Support taken by teachers in lesson planning

Teachers take support from the following during their lesson planning	Percentage of responses
AEO	1%
Head teachers	16%
Peer teachers	22%
Teacher guide	42%



TEACHING PRACTICES USED IN THE CLASSROOM

Teachers were asked a series of questions on their current teaching practices. Results show that:

Table 14: Teaching practices used by teachers

Teaching practices used in the classroom	Percentage of responses
Teachers use Urdu language in their instruction	88%
Teachers use teaching aids/resources	96%
Teachers always assign group work and 98% assign individual tasks	98%
Teachers always ask questions while teaching	98%
Teachers provide opportunities to students to ask questions while teaching	97%
Teachers give homework to the students according to the lesson taught	96%
Teachers engage students in managing the classroom discipline	94%
Teachers discuss students' progress with head teachers always/mostly	95%

Table 15 shows the following methods used by teachers to assess students' learning.

Table 15: Methods used by Teachers to Assess Classroom Learning

	Always/mostly
Oral through question/answers	94%
Written	93%
Homework	92%
Involvement in classroom activities	92%



PARENTS PARTICIPATION

To understand engagement with parents, teachers were asked questions over their involvement in school matters. Responses show that 87% of the teachers discuss students' progress with their parents on a monthly basis. Other discussion areas are given below:

Table 16: Areas of discussion with parents by teachers

	Always/mostly
Student's absenteeism	75%
Co-curricular activities	68%
Students' performance in his/her studies	84%
School discipline	73%



INVOLVEMENT IN SCHOOL ADMINISTRATION

Teachers were asked questions over their interaction with the head teachers and their involvement in administration activities. Responses are given below:

Table 17: Areas of engagement in school administration by teachers

	Always/mostly
School administration	84%
Discussion with fellow teachers to improve students learning	95%
Meeting with parents to discuss students' issues	92%
Involve in solving students' problems	95%

Further feedback of teachers about their head teacher's performance is as follows:

Table 18: Feedback by teachers on headteachers performance

	Percentage of teachers
Head teacher always follows the rules and regulations of the school.	95%
Head teacher always makes an effort to bring improvement in the school.	96%
Head teacher always guides teachers on classroom instructions.	94%
Head teacher always invites guest speakers to talk on different topics/concepts.	73%
Head teacher always remains in contact with parents to discuss school affairs.	91%

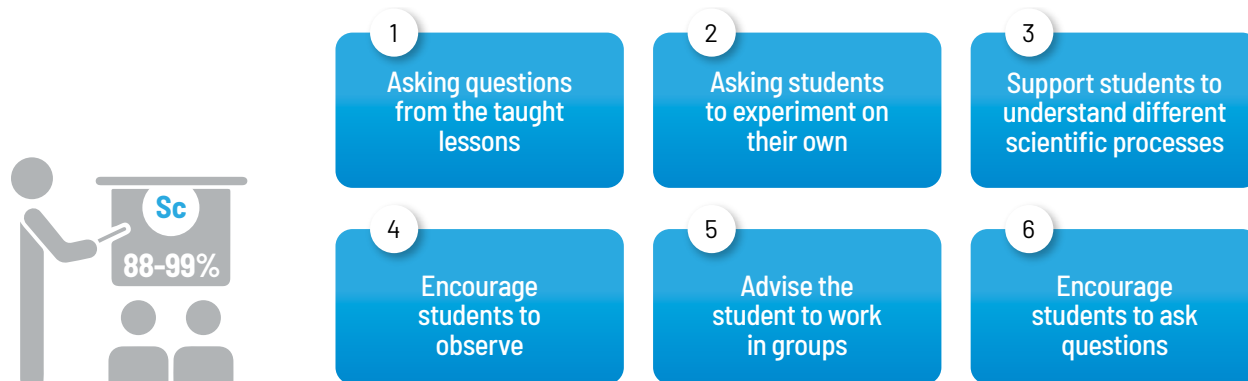


TEACHING SUBJECTS OF SCIENCE, MATHEMATICS, ENGLISH AND URDU

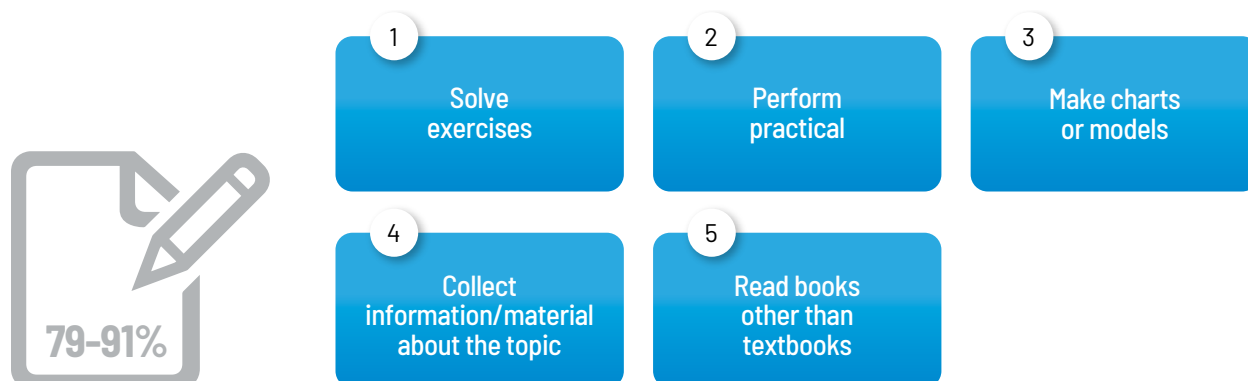
Teachers were asked about their knowledge and experiences in teaching of the four subjects tested under the assessment i.e. English, Mathematics, Urdu and Science. Responses are given below:

Teaching of Science

Majority of the teachers (about 88% to 99%) use the following technique for teaching Science:



Majority of the teachers (about 79% to 91%) give the following as homework for Science:



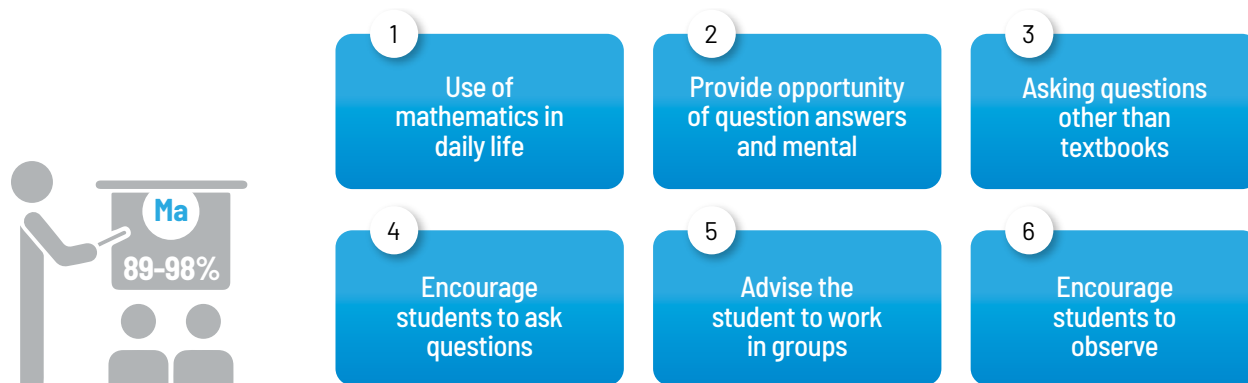
39% of the teachers have received training on teaching Science in the last 2 years. More than 80% of teachers find the topics in the Science textbook easy. Breakdown of responses is given below.

Table 19: Topic-wise difficulty levels in Science

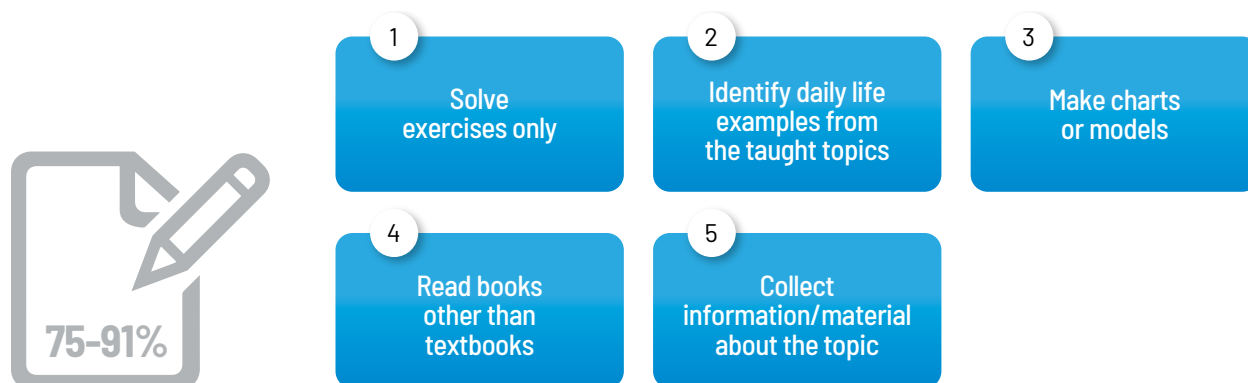
Topics	% of teachers found easy	% of teachers found difficult
Characteristics of animals	96	4
Food and nutrition	97	3
Living things and their environment	96	4
Matter and its states	94	6
Temperature and its measurement	86	14
Forces and Machines	90	10
Sound	94	6
Electricity and Magnetism	82	18
Movement of earth	90	10

Teaching of Numeracy (Mathematics)

Majority of the teachers (about 89% to 98%) use the following technique for teaching Mathematics:



Majority of the teachers (about 75% to 91%) give the following as homework for Mathematics:



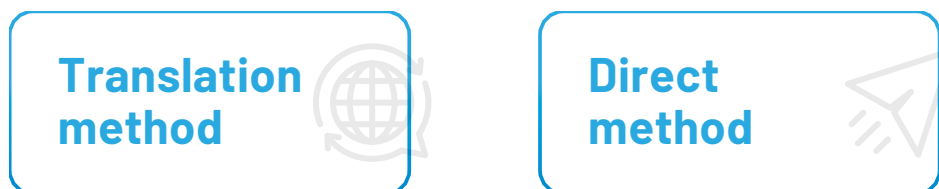
43% of teachers have received training on teaching Mathematics in the last 2 years. More than 86% of teachers find the topics in the Mathematics textbook easy. Breakdown of responses is given below.

Table 20: Topic-wise difficulty levels in Mathematics

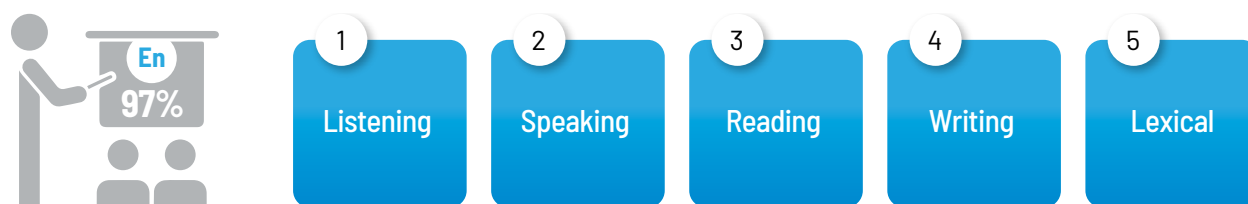
Topics	% of teachers found easy	% of teachers found difficult
Number operations	97	3
HCF and LCM	95	5
Fractions	95	5
Decimals and percentages	93	7
Distance, time and temperature	91	9
Unitary method	91	9
Angles	90	10
Types of triangles	94	6
Types of quadrilaterals	92	8
Construction of square, triangle and rectangle	94	6
Perimeter and area	89	11
Information handling	87	13

Teaching of Literacy (English)

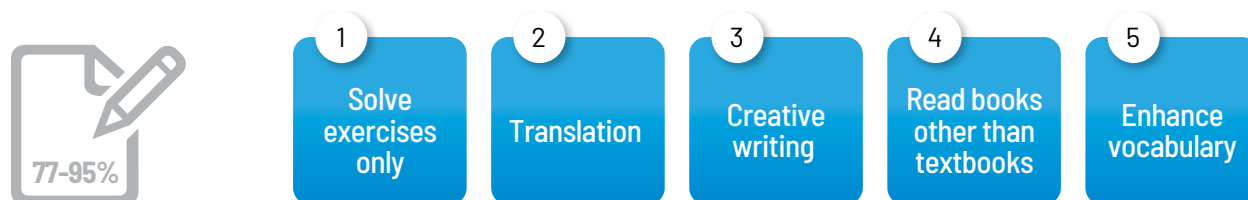
Majority of the teachers (about 78% to 98%) use the following technique for teaching English:



97% of the teachers focus on teaching the following competencies:



Majority of the teachers (about 77% to 95%) give the following as homework for English:



55% of teachers have received training on teaching English in the last 2 years.

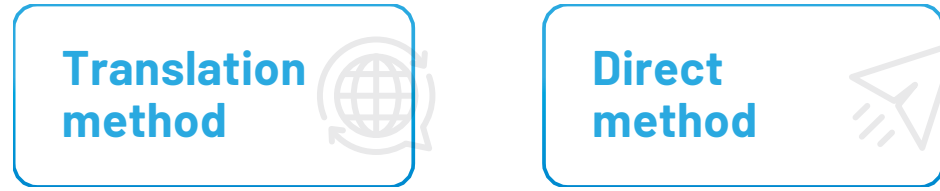
More than 80% of teachers find the topics in the English textbook easy. Breakdown of responses is given below.

Table 21: Topic-wise difficulty levels in English

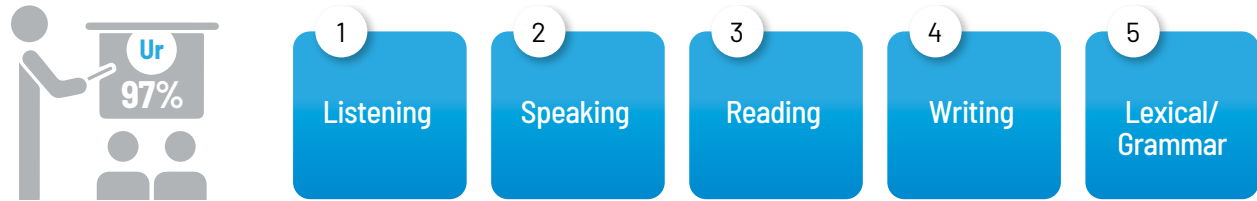
Topics	% of teachers found easy	% of teachers found difficult
Passages/topics	95	5
Poems	89	11
Comprehension	92	8
Grammar	90	10
Sentence making	92	8
Essay writing	91	9
Creative writing	83	17
Letter or application	96	4

Teaching of Literacy (Urdu)

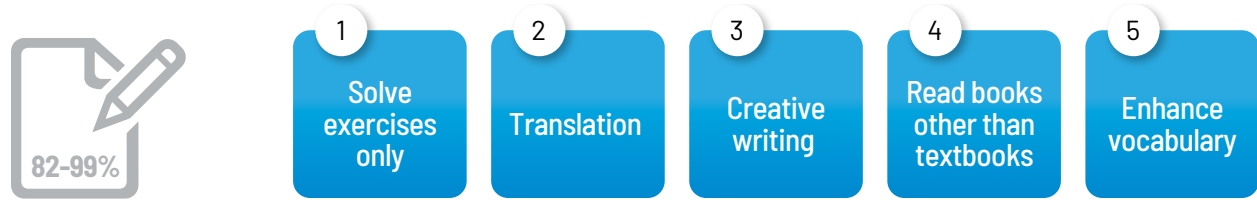
Majority of the teachers (about 77% to 96%) use the following technique for teaching Urdu: (Options)



97% of the teachers focus on teaching the following competencies:



Majority of the teachers (about 82% to 99%) give the following as homework for Urdu:



45% of the teachers have received training on teaching Urdu in the last 2 years.

A further 86% of teachers found that the provided training can always/mostly be applied in the classroom.

More than 80% of teachers find the topics in the Urdu textbook easy. Breakdown of responses is given below.

Table 22: Topic-wise difficulty levels in Urdu

Topics	% of teachers found easy	% of teachers found difficult
پڑھائی - نثر پڑھانا	95	5
پڑھائی - نظم پڑھانا	95	5
تفہیم	87	13
تشریح	92	8
قواعد	84	16
جملہ سازی	96	4
مضمون نویسی	94	6
تخلیقی لکھائی	87	13
خط یا درخواست	96	4

3.5.6 School Council's Feedback

School councils were also asked to provide their inputs on their involvement in key areas of the school. Their responses are given below.

Table 16 provides an overview of the number of meetings members of school councils have done in schools.

Table 23: Frequency of school council meetings

Number of School Council Meetings during a Year	%
1 to 2	13
3 to 5	22
6 to 8	31
9 to 12	31

In the meetings, key issues are discussed with the following frequency:

Table 24: Areas of discussion in school council meetings

	Always	Mostly	Sometimes	Never
School infrastructure	57%	34%	6%	1%
Students' performance	75%	21%	2%	0%
Community participation	41%	42%	14%	1%
Budget utilization	65%	23%	6%	3%
Corporal punishment	33%	20%	17%	27%
Teachers training	44%	32%	17%	4%
Financial assistance of students (shoes, uniform)	46%	35%	14%	3%
Books and AV aids for school	51%	34%	10%	2%
Sports and competitions in school	30%	37%	25%	5%

The different activities in which the school council participates are given in the table below.

Table 25: School council participatory activities

Activities	%	Activities	%
Improve school discipline	59%	Improve teaching-learning process	48%
School Construction	54%	Planning to use NSB funds	61%
Solve students' problems	66%	The hiring of temporary teachers	35%



The suggestions given by different council members for further strengthening of the functioning of the school council are as follows:

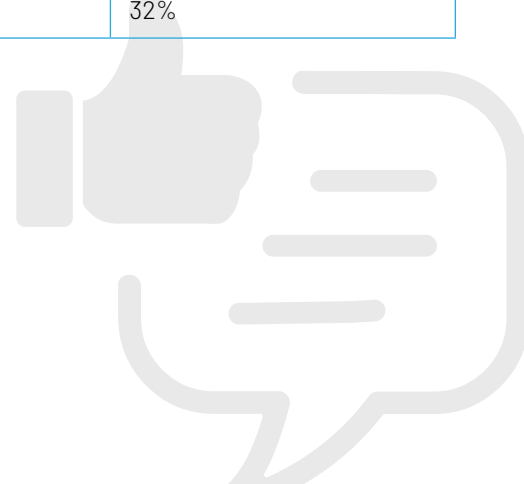
Table 26: Suggestions given by school councils for strengthening council functioning

Suggestions	Percentage of responses by members
Increasing Members of the school council	14%
Assigning set responsibilities to each member	60%
Having more cooperation with the school's teachers	62%
Needing more training	40%
More use in improving the teaching-learning environment	43%
Collecting funds for the school.	27%

The suggestions given by different council members for usage of the NSB funds are as follows:

Table 27: Suggestions given by school councils for usage of NSB funds

Suggestions	Percentage of responses by members
Improving the teaching-learning process	71%
Motivating teachers by giving them prizes/incentives	22%
Increasing recruitment of temporary teachers to assist with shortages	41%
Provision of financial support to needy children/students	63%
Procurement of more school resources	53%
Organizing of sports activities for children	50%
Improving basic facilities	73%
Motivating students by giving them prizes/incentives	54%
Increasing trainings to teachers	30%
Purchase of school uniforms and shoes for needy children/students	65%
Procurement of library books	36%
Procurement of science lab materials	32%





Recommendations



4



To bring improvement in the system, a collective effort is needed by stakeholders at the provincial, district and school levels. The findings of the results lead to the following recommendations:

4.1 SED

Policy directions needed to support teachers:

- Teachers across all SED, PEF and PEIMA should be encouraged to improve their academic credentials through initiation of academic programmes and mandatory reading of supplementary materials to aid teaching and subject knowledge.
- QAED can start academic programmes and short courses through district QAEDs to provide the necessary support to teachers.
- More capacity-building support can be provided to teachers under the existing CPD programmes in terms of scope and coverage for all teachers at the primary and elementary levels.
- Lesson planning can be made compulsory for teachers in Punjab. With the support of QAED, PCTB and PEC the lesson plan can be provided in a digital format via the school information system (SIS) to ensure consistent utilisation.
- Further interventions especially diagnostic studies need to be initiated to identify areas for improvement of teachers whose performance is low.
- Revision of the student-teacher ratio (STR) needs to be done with appointment of new teachers to avoid multi-grade teaching.

Policy directions needed to develop a collaborative supportive school environment:

- Zero tolerance policy to be implemented by DEAs against corporal punishment in true letter and spirit.
- Effective functioning and use of school councils to be worked on. For resolution of issues and understanding of school issues, some adult literacy programmes with the Non-Formal Basic Education Department (NFBE) can also be started.

4.2 QAED

- Teachers' certification and CPD programmes need to be revised with an effective mechanism of feedback. Two-way communication between teachers and district QAEDs post trainings and regular follow-ups by the provincial QAED is recommended to ensure implementation of learnings from trainings.
- Engagement of male and female teachers should be on a proportional basis in all trainings.
- Focused subject-based trainings in the form of a diagnostic should be given to each district. LSA findings can be used to provide teachers with topic-specific trainings in core subjects of Science, Mathematics, English and Urdu.
- Lesson plans to be developed under SNC on one standardised template and sent to schools. Usage of lesson plan to also be included in the school-based CPD programme (i.e. Innovative Teacher Support Package (ITSP)).
- Skill-based trainings on strengthening of interpersonal skills of teachers to be added in induction and promotion-linked training programmes of QAED. Head teachers should be provided leadership trainings with a focus on managerial skills.
- QAED training programmes need to increase both scope and coverage to all teachers of primary and elementary schools.

4.3 PCTB

- Textbook authors and subject specialists should be regularly provided with feedback from teachers on weak SLOs, topics and perceptions for incorporation of necessary feedback annually.
- Textbooks also are to be distributed with supplementary materials in a timely manner to ensure proper use in schools.
- LSA data received on difficult topics identified by teachers and students needs to be studied with planning for needed strategies for improvements.

4.4 PMIU

- Data on classroom observations should be regularly shared with teachers for improvements. Compliance should be done to ensure two visits by AEO done every month and necessary support is provided in the TFMs.
- Missing facilities should be identified per school and support needs to be provided in infrastructure development.
- Usage of teacher guides needs to be added as a performance indicator for schools/teachers.

4.5 DEAs

- Regular school visits need to be conducted with mentoring of teachers during classroom observations. AEOs should play their role in training of teachers at their markaz centres.
- Planning for effective involvement of parents through school councils needs to be done.
- Monitoring needs to be done to ensure teachers' timely and regular participation in CPD trainings and use of lesson plans.
- AEOs should ensure usage of teachers' guides and training of teachers, for development of lesson planning.
- AEOs should provide effective mentoring of teachers regarding implementation of SNC.
- AEOs should guide teachers in using formative assessment techniques to improve their teaching and students' learning performance.
- AEOs should guide teachers to use digital tools to develop papers from PEC Item Bank and conduct SBA 2021.

4.6 SCHOOL

- Physical education/sports teachers should organize co-curricular activities and encourage students to participate in their interested co-curricular activities.
- Head teachers and teachers should cultivate supporting behaviour and norms among students.
- Schools should promote positive norms and behaviours among students through collaborative learning, group activities, sharing of lunch boxes and fund raising activities.
- PTMs need to be regularly organised in the schools.
- Head teachers should involve school councils to reach parents of students and develop linkages for improving students' academic performance.
- Appropriate homework needs to be assigned to students with setting up of a proper setup of checking homework and seeing student responses.
- Regular engagements with parents are to be done through PTMs and informal sessions to ensure involvement in school activities.

4.7 PARENTS

- Progress and behaviour of all students should be done on a regular basis. This includes checking of homework and discussions on learning done in schools.
- Attendance in PTMs should be done with informal check-ins with the head teacher and class teachers on students' progress.





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