



LARGE-SCALE ASSESSMENT (LSA)

GRADE 5



LARGE-SCALE ASSESSMENT (LSA) 2022

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GRADE 5

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List of Abbreviations/Acronyms

ALP	Accelerated Learning Programme	PEC	Punjab Examination Commission
APF	Assessment Policy Framework	PEF	Punjab Education Foundation
ASER	Annual Status of Education Report	PEIMA	Punjab Education Initiative Management Authority
AV	Audio-Visual	PESP III	Punjab Education Sector Project III
B.A.	Bachelor of Arts	PISA	Program for International Student Assessment
B Sc	Bachelor of Sciences	PMIU	Programme Monitoring and Implementation Unit
CPD	Continuous Professional Development	PPP	Public Private Partnership
CRQ	Constructed Response Question	PRP	Pakistan Reading Project
DEAs	District Education Authorities	PTM	Parent Teacher Meeting
DLI	Disbursement Linked Indicator	RRQ	Restricted Response Question
ECE	Early Childhood Education	QAED	Quaid-e-Azam Academy for Educational Development
ERQ	Extended Response Question	SAFED	South Asian Forum for Education Development
HED	Higher Education Department	SBA	School Based Assessment
HCF	Highest Common Factor	SED	School Education Department
IT	Information Technology	SIS	School Information System
ITSP	Innovative Teacher Support Package	SLO	Student Learning Outcome
LCM	Least Common Multiple	SNC	Single National Curriculum
LSA	Large Scale Assessment	SOPs	Standard Operating Procedures
M.A.	Master of Arts	SRP	Sindh Reading Programme
MCQ	Multiple Choice Question	STR	Student-Teacher Ratio
MEA	Monitoring and Evaluation Assistant	TA	Technical Assistance
MSc	Master of Sciences	TFM	Teacher Forum Meeting
NFBE	Non-Formal Basic Education	ToS	Table of Specification
NSB	Non-Salary Budget	WB	World Bank
PCTB	Punjab Curriculum and Textbook Board	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 2019. The APF is aligned with our government's strategic vision for education, given in the document New Deal for Education 2018-23. It is a part of the education reforms that we have introduced in the province for improved student learning outcomes since 2019.

Under the APF 2019, Punjab Examination Commission (PEC) has been mandated to implement both, School Based Assessments (SBA) for school and classroom level improvements along with Large scale assessments (LSA) for strengthening of the overall system.

It is my pleasure to announce that this year, PEC has successfully completed in entirety its mandated role in the field of assessment, especially in LSA of grade 5, and in achieving quality education through assessment (as SDG-4). LSA is based on a single National Curriculum, and it has provided results of students in four major subjects: Mathematics, English, Urdu and Science. Under the assessment, data on external factors which affect the quality of education for students has also been collected and analyzed.

I have also been informed that the PEC, while continuing and adding to its efforts in its mandate for assessment, is aligning all SLOs included in the SNC with the Global Proficiency Framework (GPF). I am certain that this report will provide us with the evidence needed to make critical decisions for the improvement of 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 Program Monitoring and Implementation Unit (PMIU) along with the public private partners of Punjab: 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 needed for improved student learning outcomes and informed decision making in the areas where it is needed most. Results of the LSA can also be used to inform critical stakeholders such as parents, students, civil society and the District Education Authorities (DEAs) of the Punjab province about the factors affecting students' progress and the quality of education.

The contributions of the Punjab Examination Commission for the execution of the LSA and development of this report in Punjab are greatly appreciated. I am hopeful that this report will be immensely useful and valuable in order for us to strengthen and carry out improvement in the quality of our education delivery in the province.

Dr. Murad Raas

Minister for School Education Department, Punjab

Message from Chief Executive Officer, PEC

Under Assessment Policy Framework (2019), Large Scale Assessment (LSA) is one of its fundamental components having very distinctive features for all stakeholders in the Education Sector. Punjab Examination Commission during 2021, amid Pandemic conducted LSA for Grade-5 encompassing the Accelerated Learning Program (ALP) based on a brief set of curricula implemented by the School Education Department (SED). However, during the academic year 2022 on adoption of Single National Curriculum (SNC) and with improved situation the LSA of Grade-5 has been administered to set up a benchmark of learning for the province.

I am pleased to report that Punjab Examination Commission (PEC) achieved another milestone as it broadened its scope in LSA-2022 strategically across all thirty-six districts of Punjab through a robust sampling process including representation of SED, PEF and PEIMA schools. Single National Curriculum (SNC) in its true letter and spirit is implemented in the core areas of literacy, numeracy and scientific skills through evaluation of their learning in the subjects of English, Mathematics, Science and Urdu. I would like to express my deepest appreciation to my team at PEC for utilizing their expertise for the inclusion of skills addressing the psychomotor domain this year, in addition to assessing reading and listening and speaking and being able to give comprehensive feedback to the allied departments and education system.

I'm deeply indebted to UNICEF for the financial assistance enabling to prepare this report. Extending my gratitude to the School Education Department (SED) as well as 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 the development and execution of the LSA.

I am pleased to inform you that, specific excerpts from this report accrediting to curriculum and textbooks, teachers' capacity building through training programs, quality of Private-Public Partnership (PPP) schools, district performance and other policy issues and requisite recommendations will be shared with all allied departments and stakeholders i.e. School Education Department (SED), Quaid-e-Azam Academy for Educational Development (QAED), Punjab Curriculum and Textbook Board (PCTB), Programme Monitoring and Implementation Unit (PMIU) and District Education Authorities (DEAs) for future policy considerations and actionable decision for a holistic quality improvement of the education in the Province Punjab. I would like to extend my appreciation for Dr. Shahzad Jeeva, Convener Academic and Technical Committee for his untiring efforts and guidance to lead the activity. Role of PEC Commission members in the leadership of Chairperson Prof. Dr. Uzma Quraishi and their decisive role in its implementation is commendable.

Punjab Examination Commission Team is highly motivated for their future vision intending to conduct an assessment of Grade-5 again after a period of 2-3 years for which the results included in this report will be used as the benchmark against which academic performance of the students will be gauged in upcoming years. We also intend to align the upcoming LSA with Global Proficiency Framework (GPF) to analyze and report students' proficiency on SDG Indicator 4.1.1, which is the proportion of students reaching global minimum proficiency in reading and mathematics to compare, aggregate, and track assessment results on a global basis. Good luck to my Team.

Mr. Tariq Iqbal
Chief Executive Officer, 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), 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 instruments for Large Scale Assessment (LSA) and its successful implementation.

We express our sincere gratitude towards UNICEF for providing financial support for the preparation of this report. We are also indebted to the collaborative efforts of our team of researchers and experts at PEC (Tariq Iqbal, Iftakhar Hassan Butt, Dr. Muhammad Azeem, Mahboob Ahmed, Saman Rizwan, Imran Sarwar, Muhammad Awais, and other colleagues from PEC) along with our consultant Dr. Nasir Malik 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).
- 2** LSA 2022 is the second assessment of this nature, following the LSA 2021 conducted last year. Representing PEC's goal of continuous improvement in the large-scale assessment, many new sections have been added to the LSA 2022 report which were missing in LSA 2021. Notable inclusions include a section on the weak SLOs of students, performance comparison of districts, and a comparative analysis between different levels of schools (primary, middle, secondary, and higher secondary). The section on background and feedback-based data has also been made more comprehensive.
- 3** This report provides an overview of the design, conduct and results of LSA 2022. The sampling methodology, design of the assessment instruments and background questionnaires along with the analysis techniques used have also been elaborated. The report provides a detailed account of the assessment results as: (i) overall performance of students (ii) a comparison of student scores with teachers (iii) between students of schools of different organizations (SED and non-SED) (iv) between different levels of schools (primary, middle, secondary, and higher secondary) and (v) between different districts. Regression has also been run to understand the (iv) relationship of students' scores with key areas of teachers, school, and parents. Feedback data (v) of school-based actors such as teachers and school councils has also been collected. Based on the LSA findings, recommendations for different departments have also been given.
- 4** The LSA 2022 for Grade 5 and other Grades was aligned with the SNC, and hence LSA 2022 results can serve as a baseline. Due to special conditions created by COVID-19 pandemic, the results of the LSA 2021 were not considered as a baseline for Grade 5.
- 5** The LSA 2022, 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 2022 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.
- 6** 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 Single National Curriculum including subject competencies, key learning areas and learning strands respectively) and (2) Background questionnaires for head-teachers, teachers, school council members, parents and students (to collect information about students, school and classroom pedagogies).

7 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), and (ii) all types of schools (i.e., Higher Secondary, Secondary, Middle and Primary).

8 PEC steered implementation of the LSA 2022 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.

Findings highlight that:

- Overall mean scores achieved by the students is 72%. Female students achieved 73% while male students achieved 71% mean scores overall.
- Subject-wise scores show that female students achieved 76%, 73%, 73% and 70% mean scores in the subjects of Mathematics, English, Urdu and Science respectively. Where as male students achieved 76%, 70%, 70% and 68% in the subjects of Mathematics, English, Urdu and Science respectively.
- Overall students had higher percentage scores in MCQ type questions than CRQ type questions.
- In reading fluency assessment, students of Grade 5 can read on average 86 words in English and 115 words in Urdu.
- In listening assessments, students achieve 74% and 80% in English and Urdu respectively.
- In speaking assessment, students of Grade 5 can speak continuously on a topic on average for 77 seconds in English and 85 seconds in Urdu.
- Overall mean scores achieved by teachers is 81%. Overall mean scores of teachers in the subjects is 77%, 84%, 87%, and 78% in English, Science, Mathematics and Urdu respectively. The overall performance of male and female teachers is almost similar. However, male teachers scored 3% higher scores in the subject of Math, while females scored 1% more than males in English and Urdu.
- 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.
- Overall achievement of students is 82%, 82%, 81% and 82% in primary, middle, secondary, and higher secondary schools, respectively.
- Performance comparison of districts based on student scores shows that Muzaffar Garh and Vehari are the top performing districts, while Mandi Bahauddin and Gujrat are worst performing districts.
- Performance comparison of districts based on teacher scores shows that Okara and Khanewal are among the top performing districts, while the teachers from DG Khan and Pakpattan achieved some of the lowest scores.

The data showed significant impact of parents, teachers, and school related factors on students' achievement:

- Academic and professional qualification of teachers, participation of teachers in training programs, use of study aids in classrooms, lesson planning by teachers, and other healthy teaching practices have significant positive impact.
- Availability of basic facilities in school and classrooms, use of curriculum and teachers' guides, availability of subject-specialist teachers in school, opportunities for students to participate in sports, effective monitoring of teachers performance and classroom inspections by AEO and MEA also have positive and significant impact on child's learning.
- Other factors having significant positive impact include parents' qualification, parents' active engagement with school, and availability of computer and other study-aids at home.

9

In the last chapter of the report, recommendations to key stakeholders based on the findings of the study are provided. The recommendations are intended to facilitate the improvement of education provision in the province by guiding the response of relevant stakeholders.



INTRODUCTION



1

Building a strong education system that promotes learning for all is fundamental to the development and economic growth of a country (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

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** focuses 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** is a term-wise curriculum based assessments conducted by schools themselves. Test papers were constructed using centralised item banks (developed by PEC).

CLASSROOM LEVEL

The **classroom level FA** is consistent testing by teachers during and after lessons periodically. These are an 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 results⁴.

The assessment has a two-fold purpose as 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.

LSA 2022 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. LSA 2022 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

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.

⁵ Ibid. Reference 1

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).

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 have 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.

⁶PESP 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.

- **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.
- **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 students' score in percentage and mean scores.

1.4.

GUIDE TO THE REPORT

LSA 2022 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 the development of LSA 2022. 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:

- a. overall performance of students including a comparative of scores with teachers and between students of different schools (SED and non-SED);
- b. relationship of student scores with key areas;
- c. feedback of various actors such as teachers, parents, and school councils.

Chapter 4

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



ABOUT THE LARGE-SCALE ASSESSMENT (LSA) 2022



The LSA 2022 was conducted across 36 districts of Punjab.

The assessment is conducted on the Single National Curriculum (SNC) centered on the SLOs previously developed and revised after implementation of SNC by PESP III team.

2.1.

METHODOLOGICAL APPROACH

- **Target Population:** The total population of this study consists of 4363 schools under which 43,630 students and 4363 teachers have been assessed in 36 districts.

2.1.1. Sampling Methodology

Random stratified sampling based on PPS basis was used for conducting this LSA.

- **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)

In PEF data

1. Schools with less than 10 students are excluded.
2. Mosque schools are not part of the sample.
3. 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.
4. If the school has less than ten students after its categorisation on the basis of gender, it is excluded from the sample.
5. High schools are considered Secondary schools.

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 2022

	SED	PEF	PEIMA	TOTAL
Sample Size [Schools] = n	3483	739	141	4363
Students [10 per school]	34830	7390	1410	43630
Reliability Parameters				
Confidence Level	99%	95%	95%	

LSA Grade	Gender-Wise Number of Schools								Total
5	SED		PEF		PEIMA		Total		4363
	Male	Female	Male	Female	Male	Female	Male	Female	
	1659	1824	453	286	72	69	2184	2179	

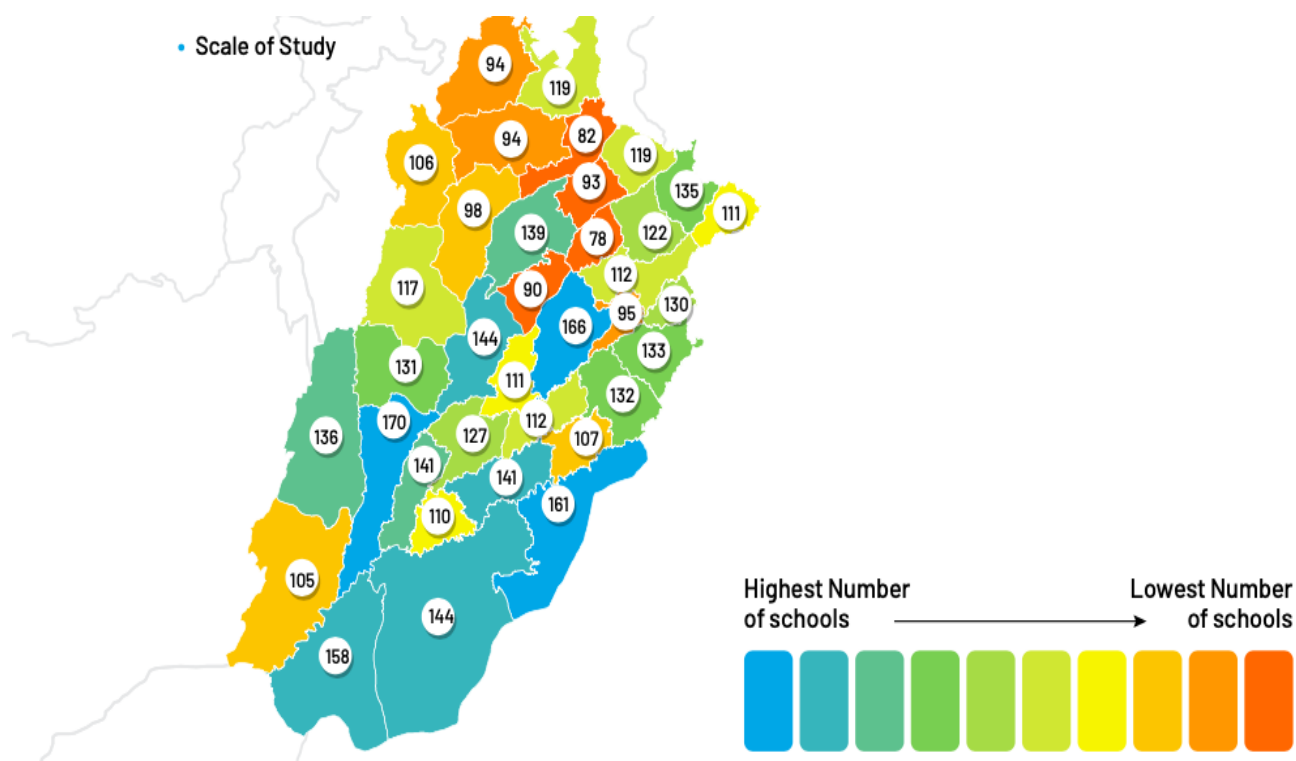
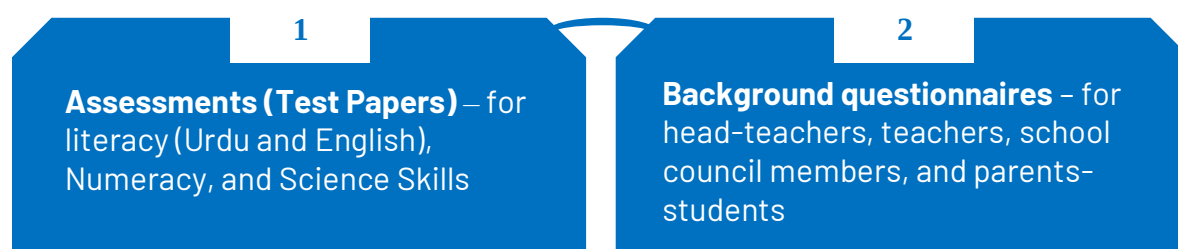


Table 1b: District-Wise Data: Number of Schools

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	M.B. 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
D.G. 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	T.T.SINGH	8	2	101	111
LAYYAH	22	4	105	131	VEHARI	33	3	105	141

2.1.2. Assessment Instruments

LSA 2022 assessment uses two instruments:



- **Type of assessment instruments**

The assessment (test papers) are further divided by type. For LSA 2022, the students of Grade 5 have been tested using 3 types of instruments:

Table 2: Type of Assessments Conducted under LSA 2022

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 2022 focuses on assessing literacy, numeracy skills and understanding of different scientific concepts and their application in daily life as presented in the Single National Curriculum. This includes competencies, key learning areas and learning strands respectively.

A brief description of each area⁷ includes (Table 3):

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 2022 has assessed the two processes (excluding viewing and speaking) along with knowledge of words and grammar.
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.

⁷Ibid, Reference 6

Coverage Under LSA	LSA 2022 has assessed the knowledge, understanding, application level, and higher order thinking skills related to the above six topics.
Scientific Skills	
Description	- 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. - 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. - 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. - 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 2022 assessed the knowledge, understanding, application level, and higher order thinking skills related to 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.

LSA 2022 includes:

1. Targeted SLOs for the basic concepts of Grade 5

These were selected by practicing teachers and assessment experts 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

Practicing teachers and assessment experts 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 2022 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 days⁸.

2.1.3. Background Data-Collection on Influencing Factors

The LSA 2022 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

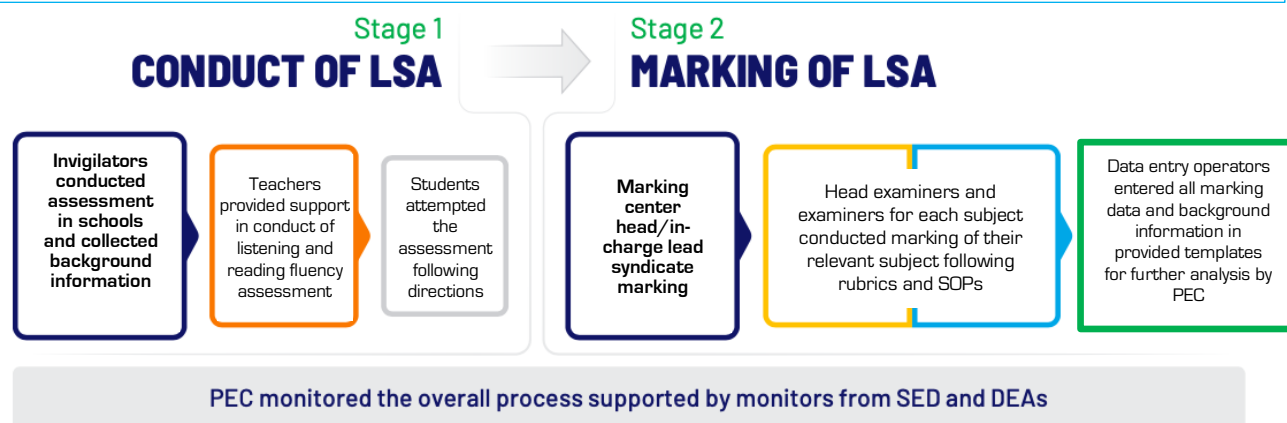
PEC has led the implementation of LSA 2022 with its core team and staff of SED. Test administrators nominated from schools were major actors engaged in conduct of the assessment at the school level. To assist the administration team, comprehensive SOPs detailing steps for conduct and marking of assessment 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 activities⁹. Figure 1 provides an illustrative overview.

⁸PESP 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.

⁹PESP 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.

Figure 1: Overview of LSA Process for Conduct and Marking



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.¹⁰

- **During the Conduct of Assessment:**
 - a. PEC along with monitors from the SED and the 36 District Education Authorities (DEAs) conducted spot checks and visits across the province.
 - b. PEC created a provincial control room to assist the test administrators and monitors and resolve all issues arising in the field.
- **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.

2.1.6 Data Entry and Analysis

LSA data has been analysed using appropriate statistical techniques relevant to the nature of the variables¹¹. These include using:

¹⁰PESPIII. (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.

¹¹PESPIII. (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.

i. Descriptive Analysis

ii. Regression Analysis

The analysis results are explained in detail in Chapter 3 of this report. The descriptive analysis has been divided into various sections, i.e., overall student scores, overall teacher's scores, comparison of scores teachers and students, and comparison of scores based on types of school administration, levels of school, and districts.

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.

Categorical data was analyzed by creating dummy variables. However, some categorical variables were treated as continuous variables, e.g., educational qualification was converted into continuous variable by using years of education completed.

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.



FINDINGS



3

SECTION 1

DESCRIPTIVE ANALYSIS

LSA 2022 is conducted in 4,363 schools of SED, PEF and PEIMA. The results of the assessment are given in detail in this chapter.

The first section of the chapter will present the descriptive analysis of students' and teachers' performance from different perspectives.

3.1.

PERFORMANCE OF STUDENTS

3.1.1 OVERALL PERFORMANCE OF STUDENTS

Figure 2: Overall Mean Scores Achieved by Students

Results show that overall students attained a score of 72% in the assessment. Female students scored 2% higher than males.

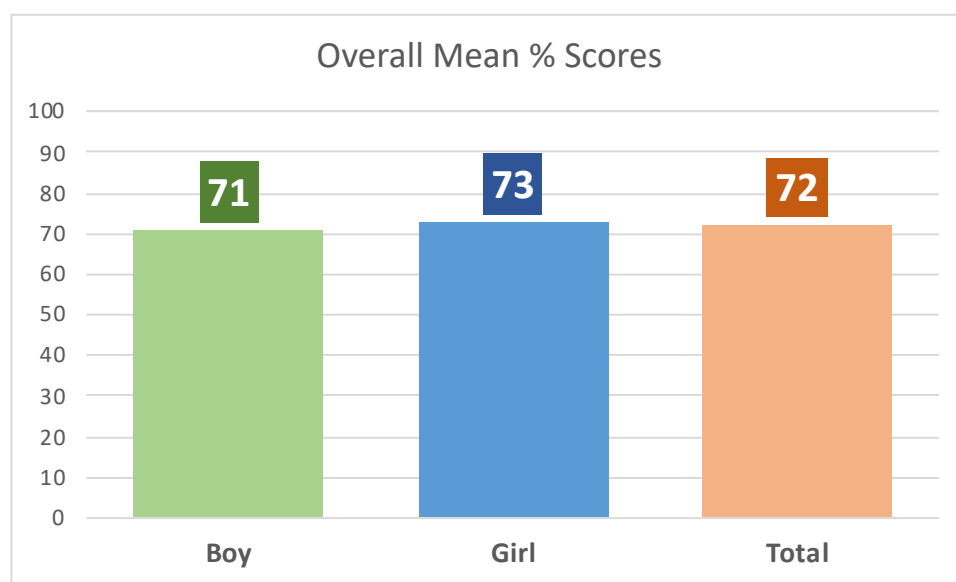
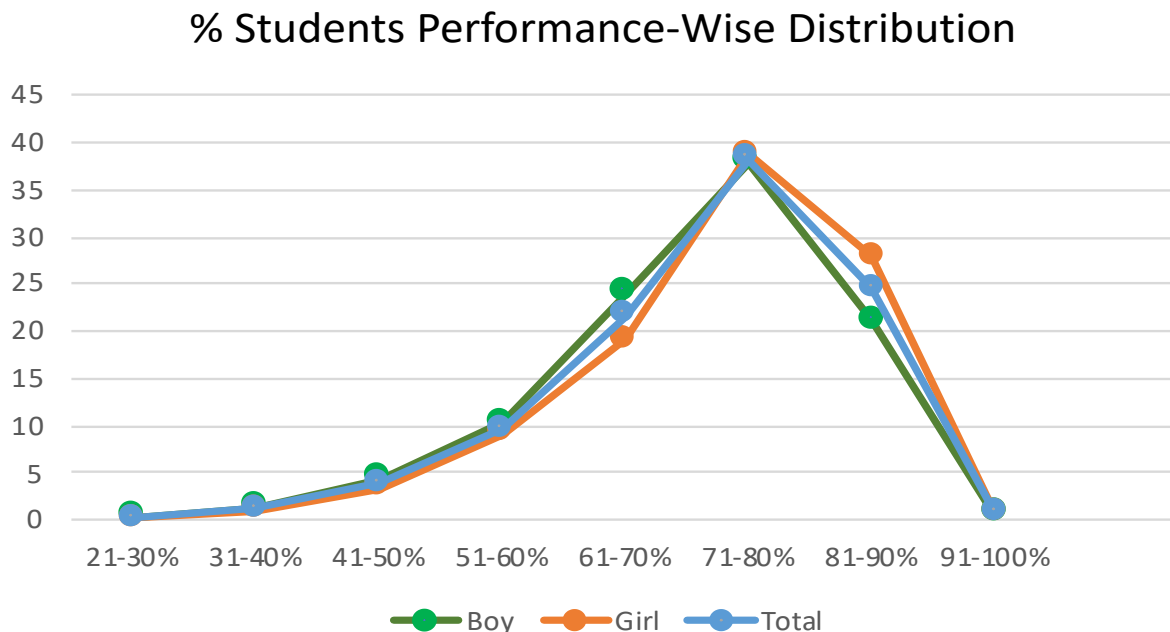


Figure 3: Overall Students' Performance by Category

In Figure 3, nine categories have been defined to understand performance. Majority of students scored in the 60-90% category.



3.1.2 SUBJECT WISE PERFORMANCE OF STUDENTS

Figure 4: Overall Students' Performance Achieved per Subject

The figure shows the subject-wise mean percentage scores under the curriculum of Mathematics, Science, Urdu and English.

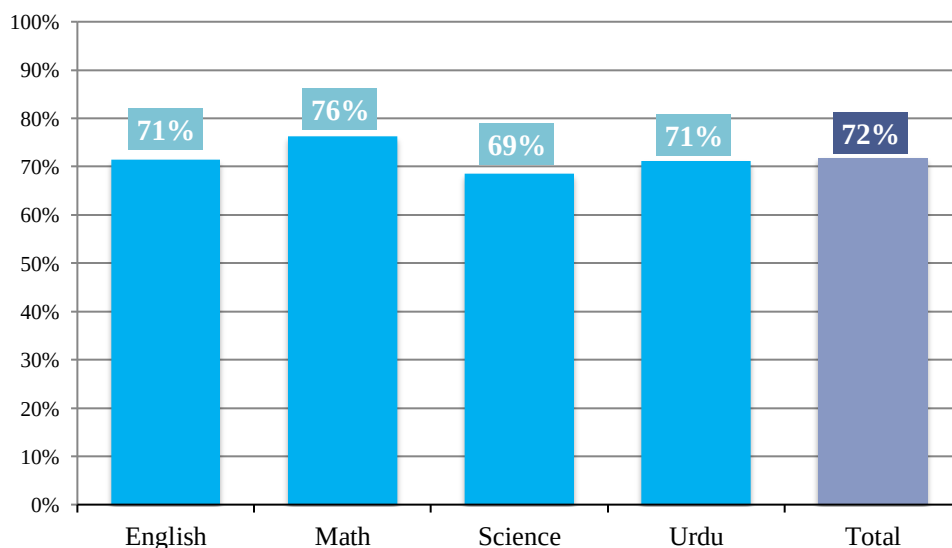


Figure 5: Students' Subject-Wise Performance Based on Gender

The figure below shows the mean scores achieved by students in different subjects based on their genders. Findings show that performance of females and males is relatively similar across subjects. Female students scored 2% higher in Science. In language subjects, the difference is higher; Females scored 3% higher in Urdu and English respectively.

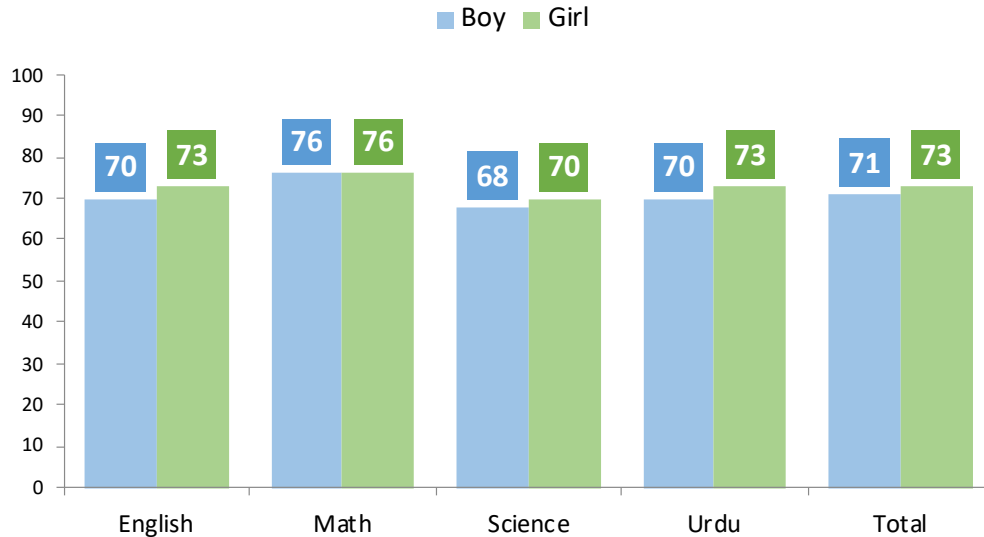
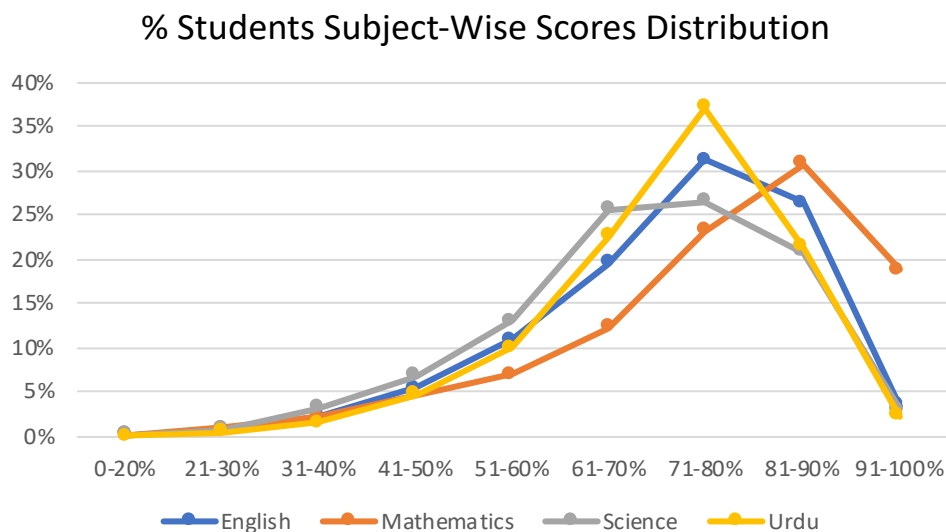


Figure 6: Overall Students' Subject-Wise Performance by Category

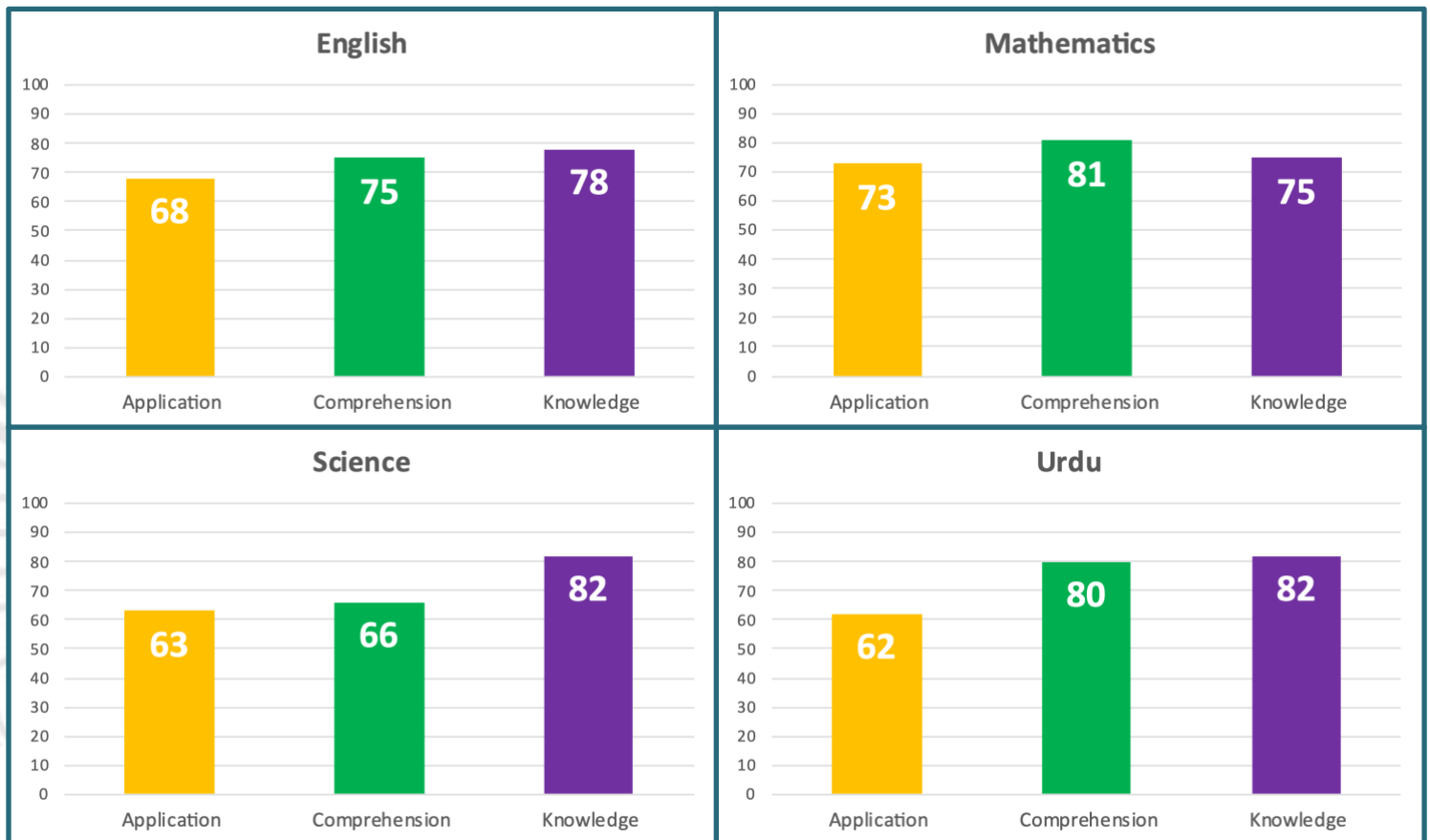
In Figure 5, nine categories have been defined to understand performance. Majority of students scored in the 60-90% category.



3.1.3 STUDENT PERFORMANCE UNDER TARGETED COGNITIVE DOMAINS

Figure 7: 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. Students' performance was relatively poor in questions testing application of concepts, while achieving higher scores in questions testing their comprehension and knowledge. However, student performance was poor in Science comprehension level questions as well.



GENDER-WISE STUDENT PERFORMANCE UNDER TARGETED COGNITIVE DOMAINS

Figure 8: Students' Gender-Wise Performance in Cognitive Domains



English: performance of female students is higher in all domains. In application questions, the difference in scores is 3% while in other two domains it is 1%.

Mathematics: the performance by females and males is relatively similar across all domains.

Science: female students scored higher in all domains; 2% higher score in application and comprehension; while 1% higher in knowledge questions.

Urdu: performance of females was higher in all domains. The difference in scores is highest in application questions, of about 3%.

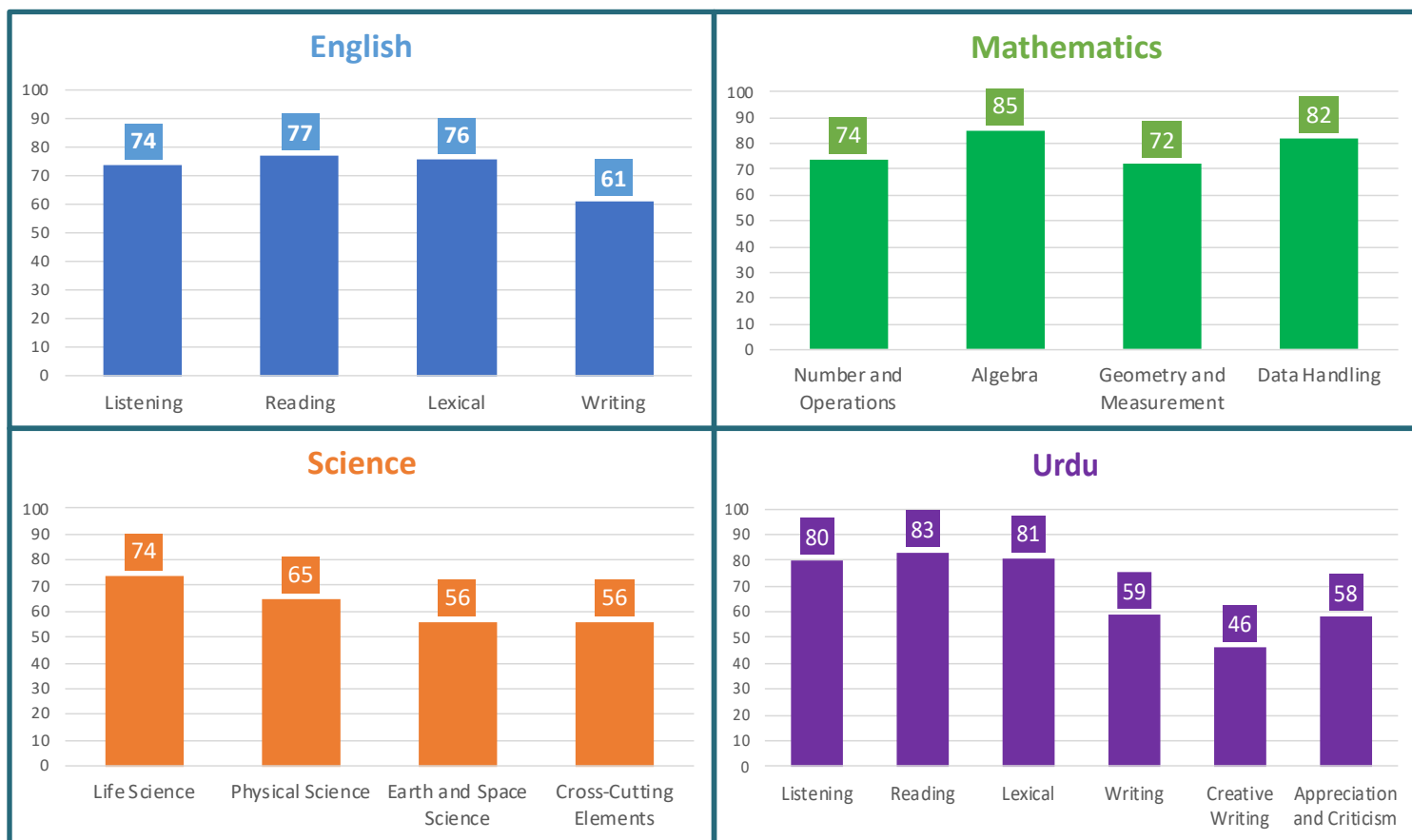
3.1.4 TOPIC-WISE PERFORMANCE OF STUDENTS

Table 4: 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 2022 assessment is given below:

Subject/ Topic	Average % Scores
English	
Listening	74%
Reading	77%
Lexical	76%
Writing	61%
Mathematics	
Number and operations	74%
Algebra	85%
Geometry and measurement	72%
Data handling	82%
Science	
Life sciences	74%
Physical sciences	65%
Earth and space science	56%
Cross cutting elements	56%
Urdu	
Listening	80%
Reading	83%
Lexical	81%
Writing	59%
Creative Writing	46%
Appreciation and Criticism	58%

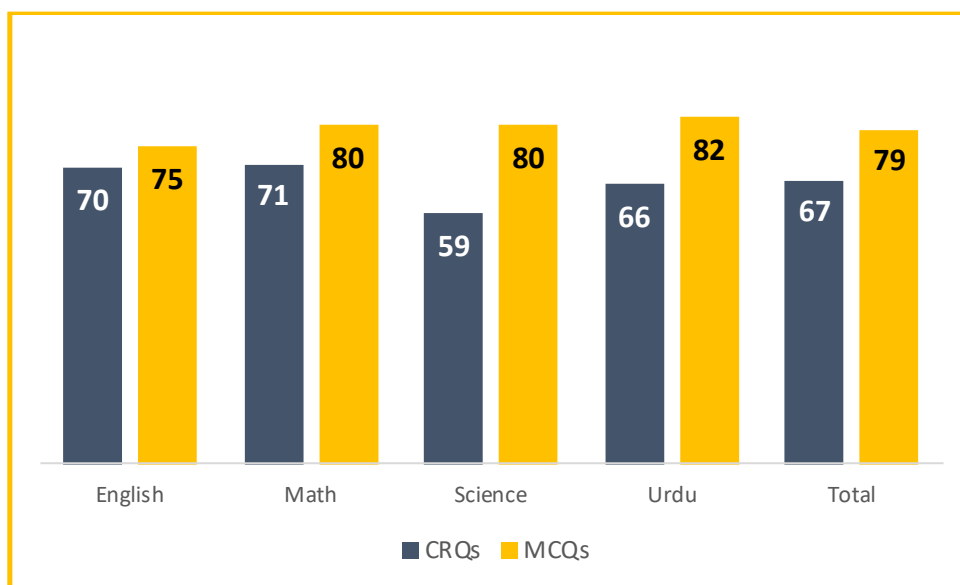


3.1.5 OVERALL STUDENT PERFORMANCE BASED ON ITEM TYPE

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

Figure 10: Overall Students' Performance According to Subject-wise Item Type

The scores show that students are performing much better in MCQs (average 79%) compared to CRQs (average 67%).



3.1.6 STUDENT PERFORMANCE IN SLOS

Table 5: SLOs With Weak Performance of Students

The table below show the subject-wise SLOs in which the performance of students was poor. Students' scores in these SLOs were significantly lower than the overall mean score in the subject.

Cognitive Level	SLO Text
Science SLOs	
Understanding	Differentiate between vertebrates and in-vertebrates.
Understanding	Describe and demonstrate the states of water (i.e., melting, freezing, boiling, evaporation, and condensation).
Understanding	Explain the formation of shadows.
Application	Investigate, that light travels in a straight line.
Understanding	Describe the uses of various satellites in space i.e., geostationary, weather, communication and global positioning system (GPS).
Understanding	Identify similarities and differences among the different types of soil.
Application	Use first aid box to dress a wound.
English Literacy SLOs	
Application	Respond to, and ask simple questions starting with be, do and have.
Application	Recall the rules of punctuation learnt earlier.
Application	Practise and use simple SVO pattern sentences. Demonstrate the use of subject-verb agreement according to person and number.
Application	Using pre-reading strategies to predict the content of a text from topic/picture, title heading etc. by using prior knowledge.
Application	Write a story using the elements of story writing. Write a short passage, anecdote, fable, etc., for pleasure and creativity.
Application	Write short informal invitations for a variety of purposes to demonstrate the use of conventions of short invitations.

Numeracy SLOs	
Understanding	Find LCM of two numbers, up to 2 digit numbers, three numbers upto 2 digit numbers using prime factorization method and division method.
Application	Solve real life problems involving division of fractions.
Understanding	Convert a fraction to decimals using division.
Understanding	Convert measures given in: i) kilometers into meters ii) meters into centimeters iii) centimeters to millimeters and vice versa.
Knowledge	Identify and describe triangles with respect to their angles (acute angle triangle, obtuse angle triangle and right-angle triangle).
Application	Solve real life problems involving HCF and LCM.
Urdu Literacy SLOs	
Application	حرفِ ندا، استعجاب ، افسوس وغیرہ کو استعمال کرسکیں۔
Understanding	مترادف اور متضاد کے فرق کو سمجھ کر بتا / لکھ سکیں۔
Application	اخبارات، رسائل و جرائد میں خبریں ،ادارے، رودادیں، اشتہارات اور خطوط بہ نام مدیر وغیرہ روانی سے پڑھ سکیں۔
Application	شعر یا نظم پڑھ کر اس کا مفہوم لکھ سکیں۔
Application	اشارات اور تصاویر کی مدد سے کہانی لکھ سکیں۔

3.1.7 STUDENT PERFORMANCE IN READING FLUENCY

Reading fluency is gaining recognition as an essential element of every reading programme. Keeping in view the critical need to build reading skills in students and make them independent readers, LSA 2022 has assessed Grade 5 reading fluency skills.

Reading fluency assessment has been carried out in Urdu and English. It mainly focuses on the rate of reading, measured as words per minute (WPM).

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:

Total Words Read — Errors

=

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.¹²

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.”¹³ For native English speakers, the rate is 100 to 150¹⁴ words per minute whereas a pilot study informed that in Punjab, the rate for English (WPM) falls between 40 and 80¹⁵ words.



¹² SRP.(2015):‘ReadingPerformanceStandardsandCompliance:ECEtoGrade5’-

UrduReading(2015).PakistanReadingProjectandSindhReadingProgramme(SRP)by USAID and Government of Sindh

¹³ MOFEPT(2020).SingleNationalCurriculum(SNC)2020-Urdu.PageNo.39

¹⁴ Rasinski, T. & Padak, N. (2005). 3-Minute Reading Assessments. New York, NY: Scholastic Inc.

¹⁵ PEC(2020):‘LargeScaleAssessment-Itemanalysisreport2019-20’.TheThirdPunjabEducationSectorProject,TechnicalAssistance,CambridgeEducation.In collaboration with the Punjab Examination Commission (PEC), 2020.

Figure 11: Average Student Scores Achieved in Reading Fluency

The 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 115 while for English the average word count is 86.

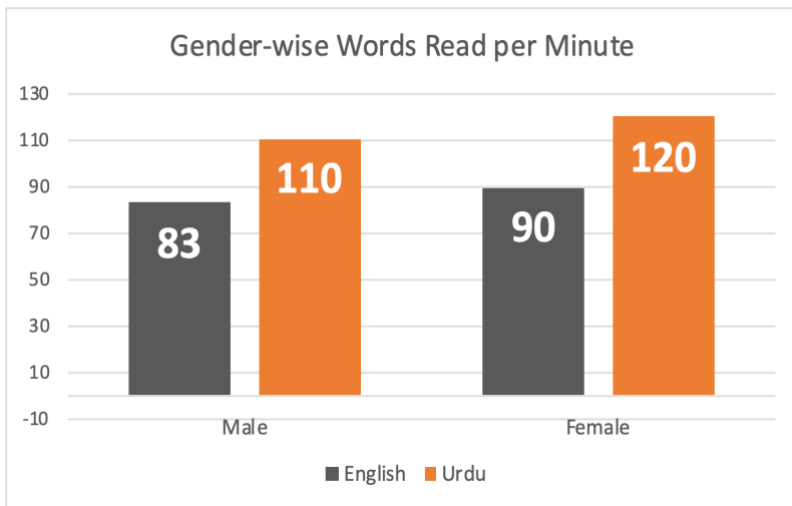
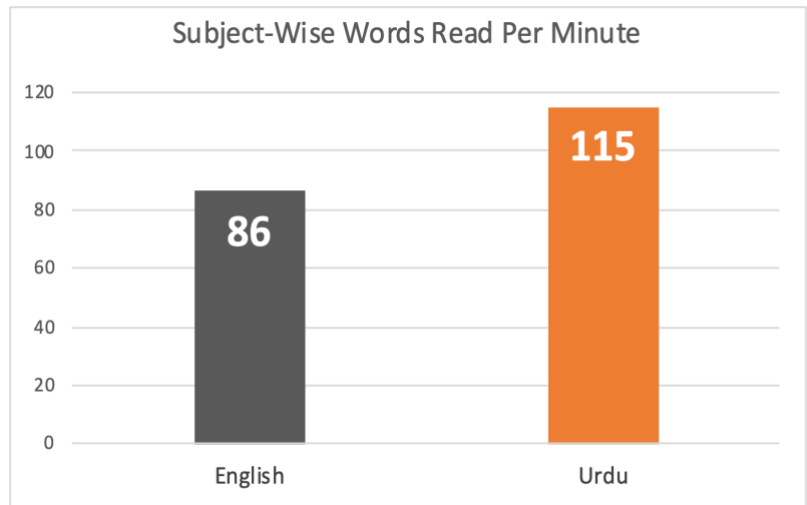


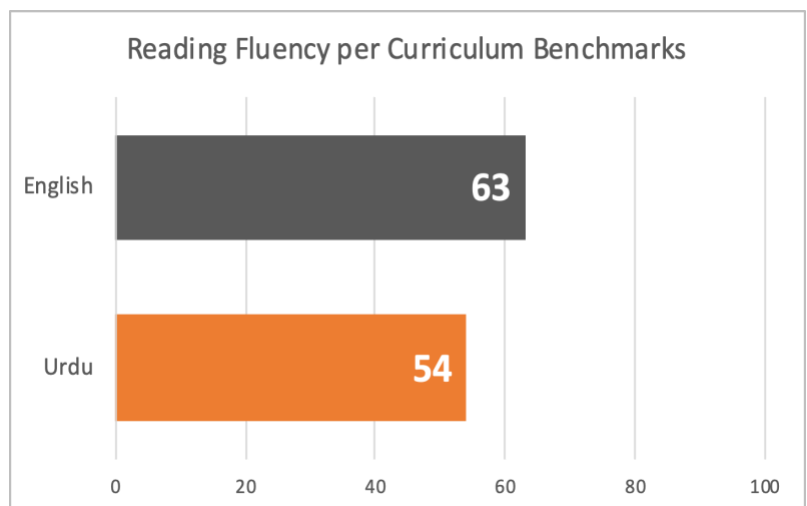
Figure 12: Gender-Wise Student Performance in Reading Fluency

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

Female students performed better than male students. In Urdu, the average word count achieved by female students is 10 words higher than males while for English the female word count is 7 words higher than male students.

Figure 13: Performance of Students in Reading Fluency per Curriculum Benchmarks

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.



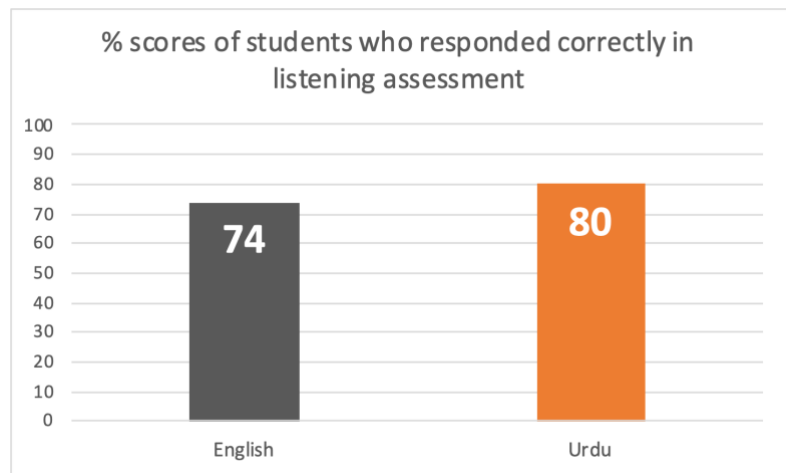
3.1.8 STUDENT PERFORMANCE IN LISTENING SKILLS

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 twice by the class 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 14: Performance of Students in Listening Assessment.

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



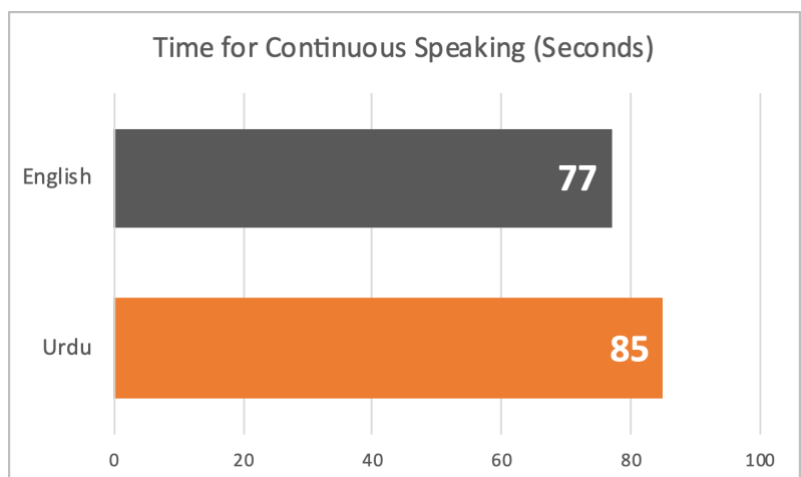
3.1.9 STUDENT PERFORMANCE IN SPEAKING SKILLS

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

Through the LSA, an initiative to assess speaking skills of the students was undertaken. Each participating student was asked to speak continuously on a given topic, and the duration of the speech was recorded.

Figure 15: Performance of Students in Speaking Assessment.

The figure shows the performance of students in both English and Urdu in terms of average time of speech in seconds.



3.2.

PERFORMANCE OF TEACHERS

3.2.1 SUBJECT WISE PERFORMANCE OF TEACHERS

The figure below show the subject-wise mean percentage scores in the subjects of Mathematics, Science, Urdu and English.

Figure 16: Overall Subject-Wise Mean Scores

The teachers scored highest in subjects of Math and Science.

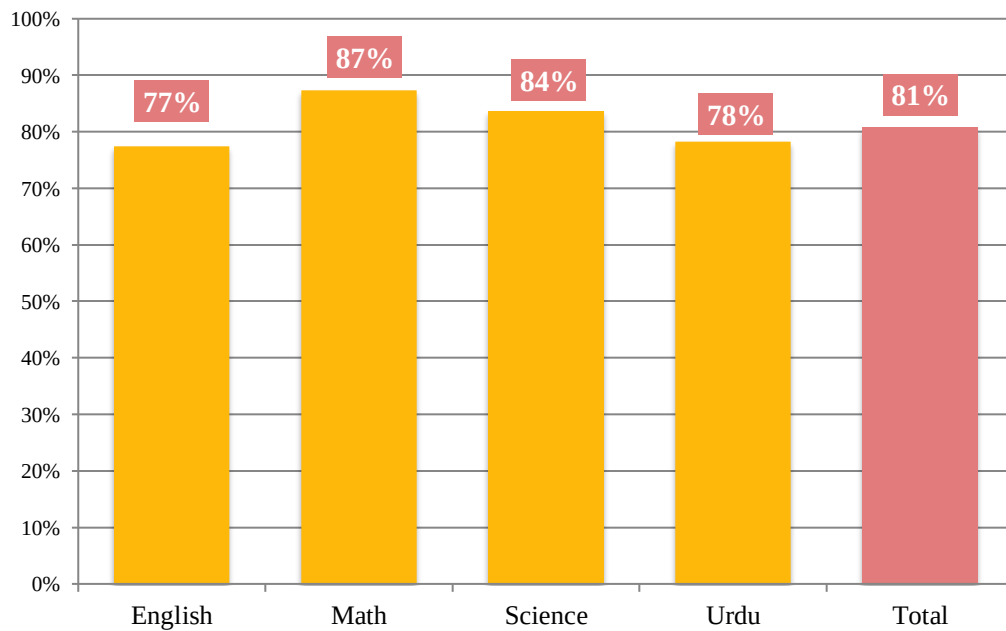
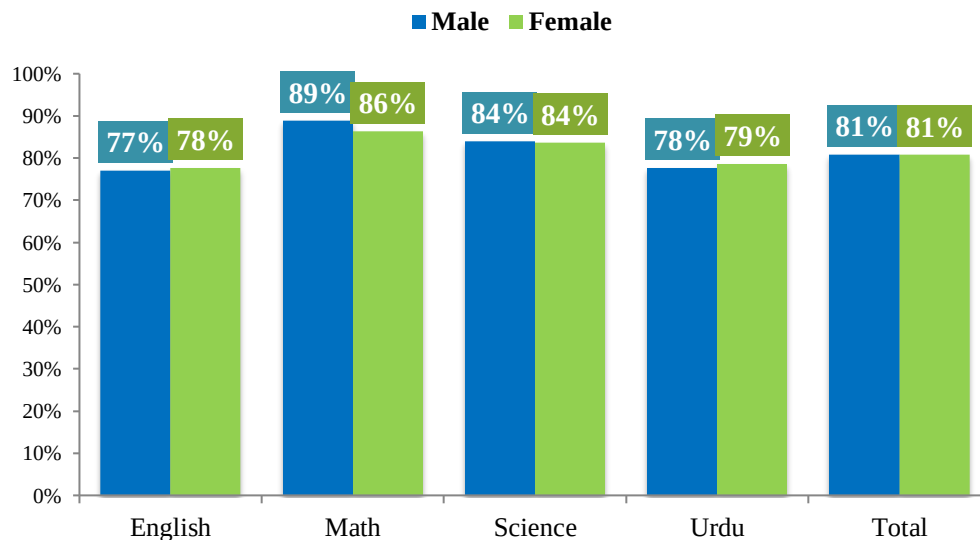


Figure 17: Gender-Based Subject-Wise Performance of Teachers

The overall performance of male and female teachers is almost similar. However, male teachers scored 3% higher scores in the subject of Math, while females scored 1% more than males in English and Urdu.

The figure below shows the overall mean scores achieved by teachers based on their genders.

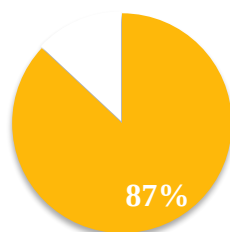


3.2.2 ITEM-TYPE WISE PERFORMANCE OF TEACHERS

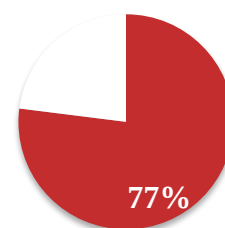
The following Figures show the percentage of correct responses by the teachers in multiple-choice questions (MCQs) and constructed response questions (CRQs).

Figure 18: Item Type-Wise Performance

MCQ's Mean Scores

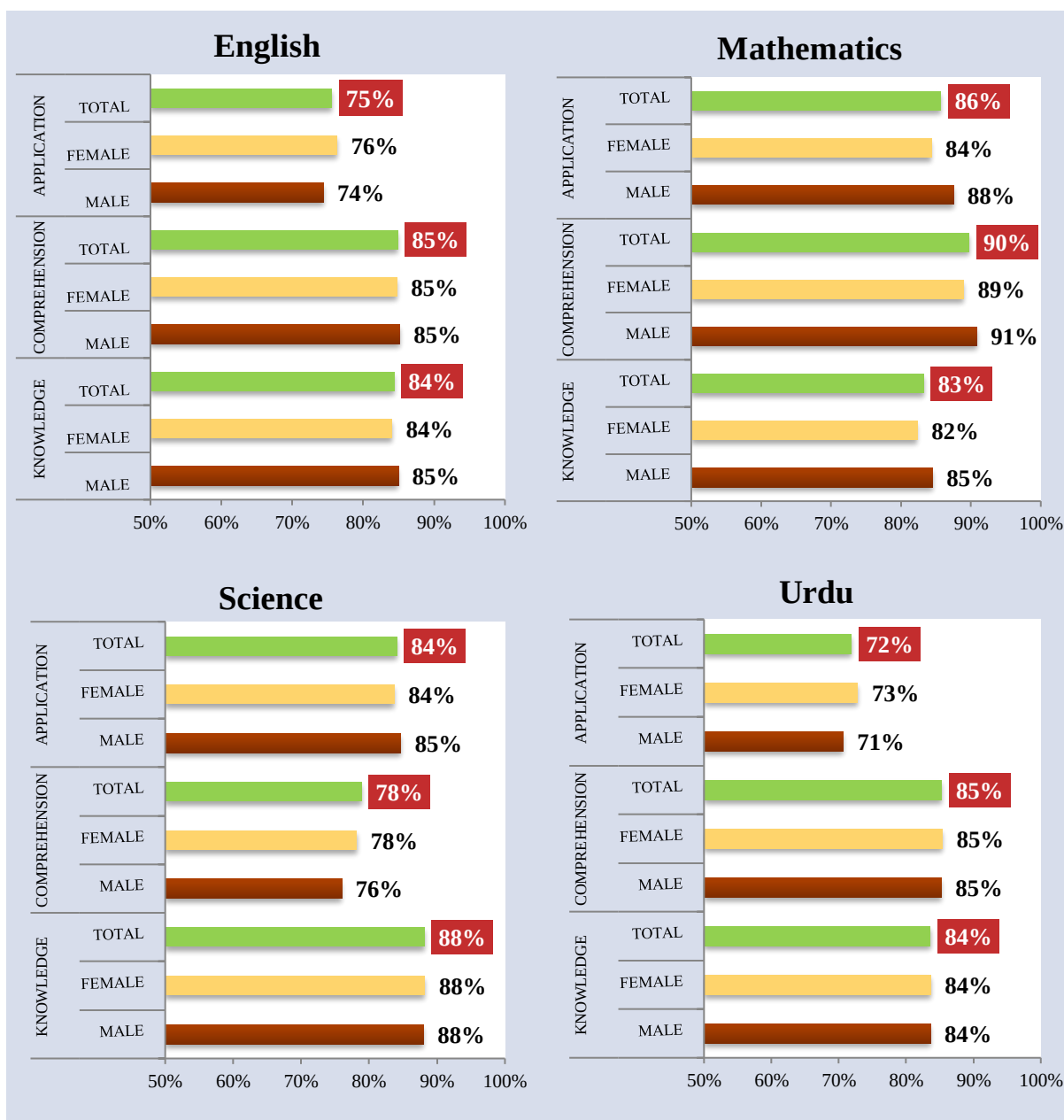


CRQ's Mean Scores



3.2.3 TEACHERS PERFORMANCE UNDER TARGETED COGNITIVE DOMAINS

Figure 19: Overall Teachers' Performance in Cognitive Domains



Overall, teachers scored the highest in knowledge-based questions across all four subjects. In comparison scores were much lower in application-based questions. **Gender-wise performance** was quite similar for both genders in all subjects except Mathematics. Males scored higher (2-4%) in all cognitive domains of Mathematics.

SECTION 2

COMPARATIVE ANALYSIS

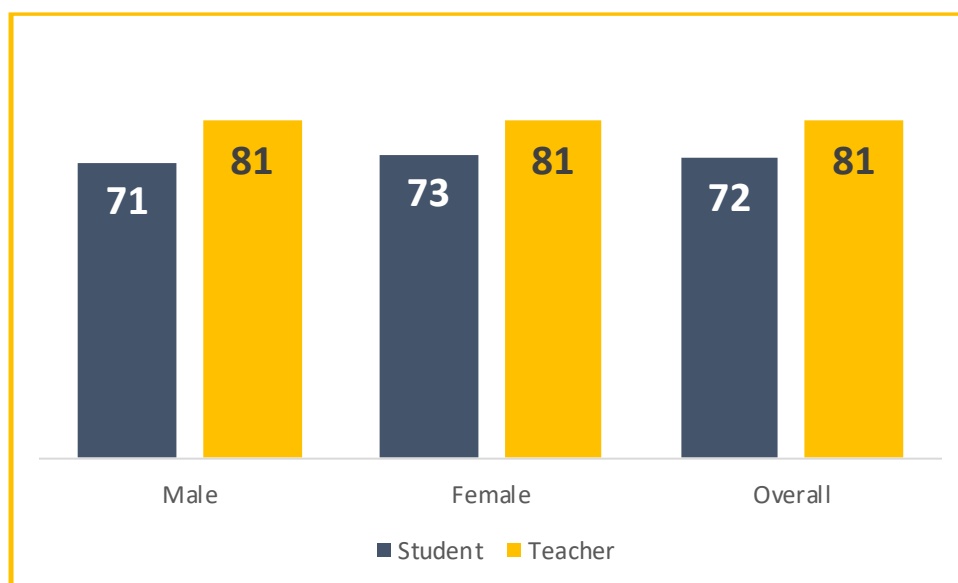
3.3.

PERFORMANCE OF STUDENTS AND TEACHERS

Overall scores of teachers and students in all four subjects were used to compare the performance of students and teachers.

3.3.1 GENDER-WISE PERFORMANCE OF TEACHERS AND STUDENTS

Figure 20: Overall Comparison of Mean Scores Achieved by Teachers and Students

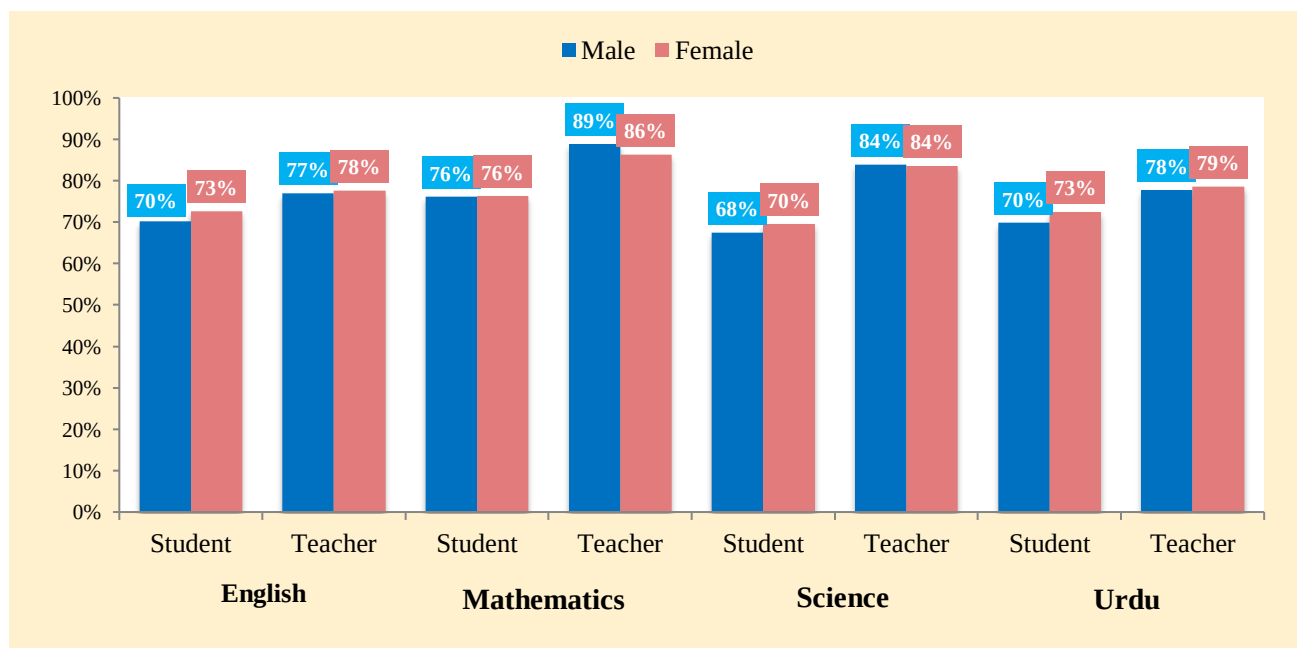


Results show that teachers' overall performance is higher than that of the students by 9%. The difference between scores of male teachers and students is 10% compared to the difference between scores of female teachers and students which is 8%.

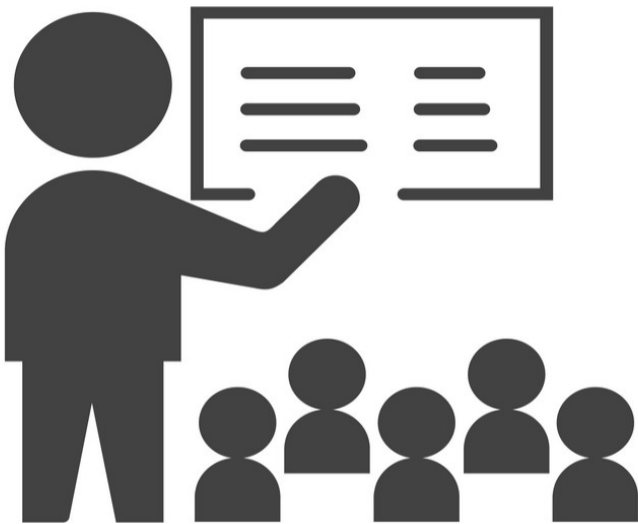
3.3.2 SUBJECT-WISE PERFORMANCE OF TEACHERS AND STUDENTS

Figure 21: Overall Comparison of Subject-Wise Mean Scores of Teachers and Students

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



Results show that the difference in scores across all four subjects is between 5-16%. The difference in student and teacher scores is the highest in Mathematics at 16% and lowest in English.



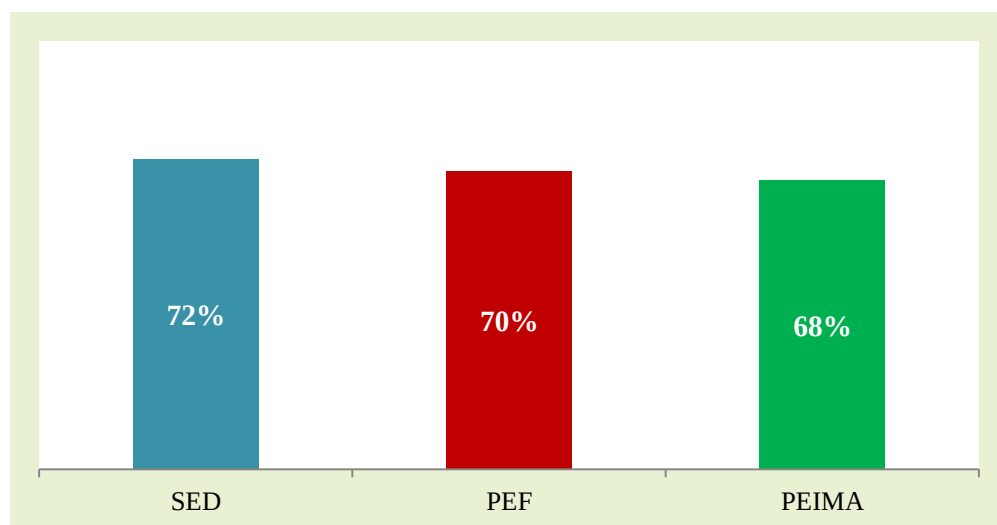
3.4.

PERFORMANCE OF SED, PEF, AND PEIMA ADMINISTERED SCHOOLS

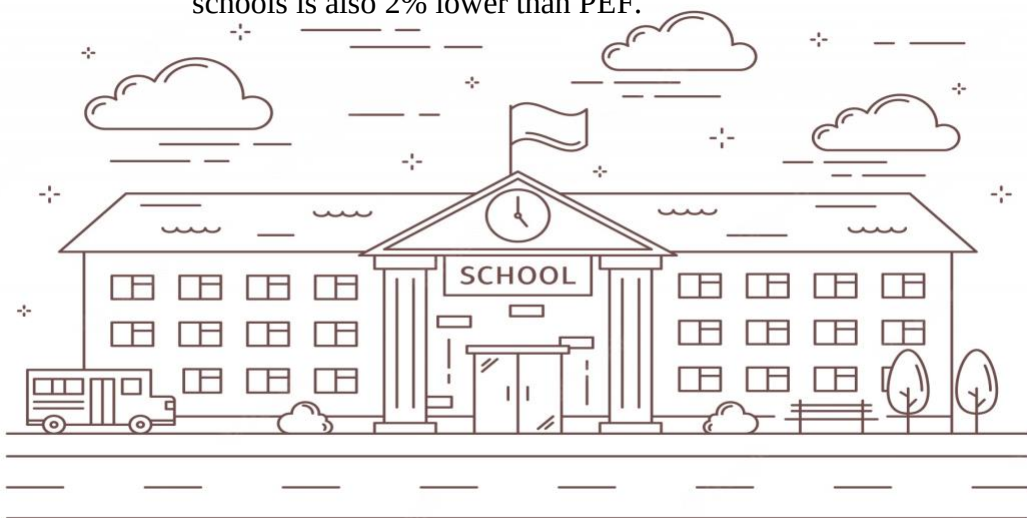
3.4.1 STUDENT'S PERFORMANCE IN SED, PEF, AND PEIMA SCHOOLS

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

Figure 22: Overall Students' Performance in SED, PEF and PEIMA Administered Schools

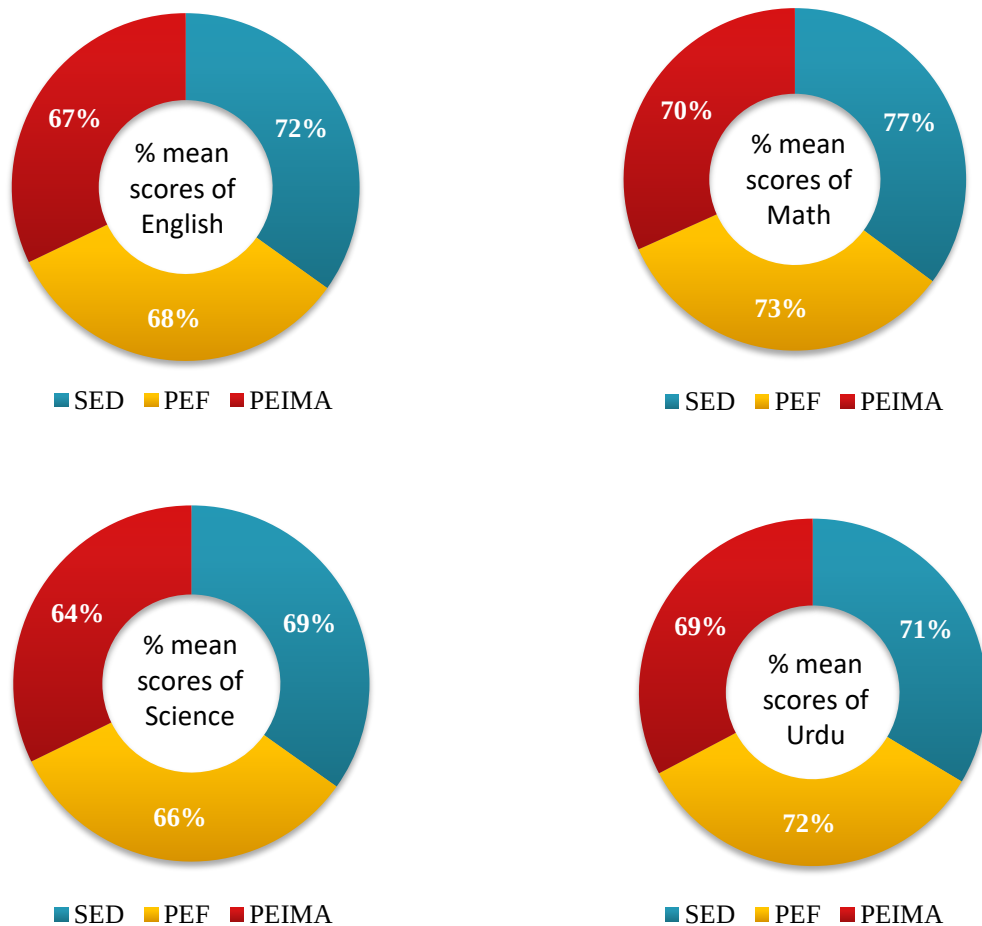


Overall, SED schools are the highest performing schools. Results show a difference of 2% between SED and PEF, and 4% between SED and PEIMA. The mean score of students from PEIMA schools is also 2% lower than PEF.



3.4.2 SUBJECT-WISE STUDENT'S PERFORMANCE IN SED, PEF, AND PEIMA SCHOOLS

Figure 23: Subject-wise Students' Performance in SED, PEF and PEIMA Administered Schools



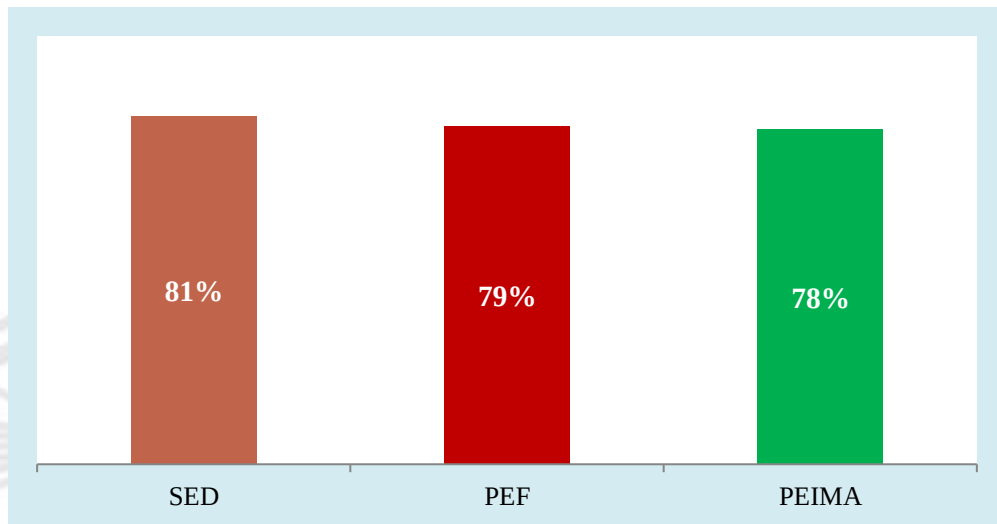
The figures show that the average difference between SED and PEF schools is about 2%, whereas with PEIMA schools, the average difference becomes almost 5%. Overall, PEIMA schools, showed the lowest scores in all subjects. The difference between performance of schools is greater in English and Mathematics, while the scores are almost similar in Science and Urdu.

3.4.3 TEACHERS' PERFORMANCE IN SED, PEF, AND PEIMA SCHOOLS

Following figure shows the overall teachers' performance in SED, PEF and PEIMA administered schools.

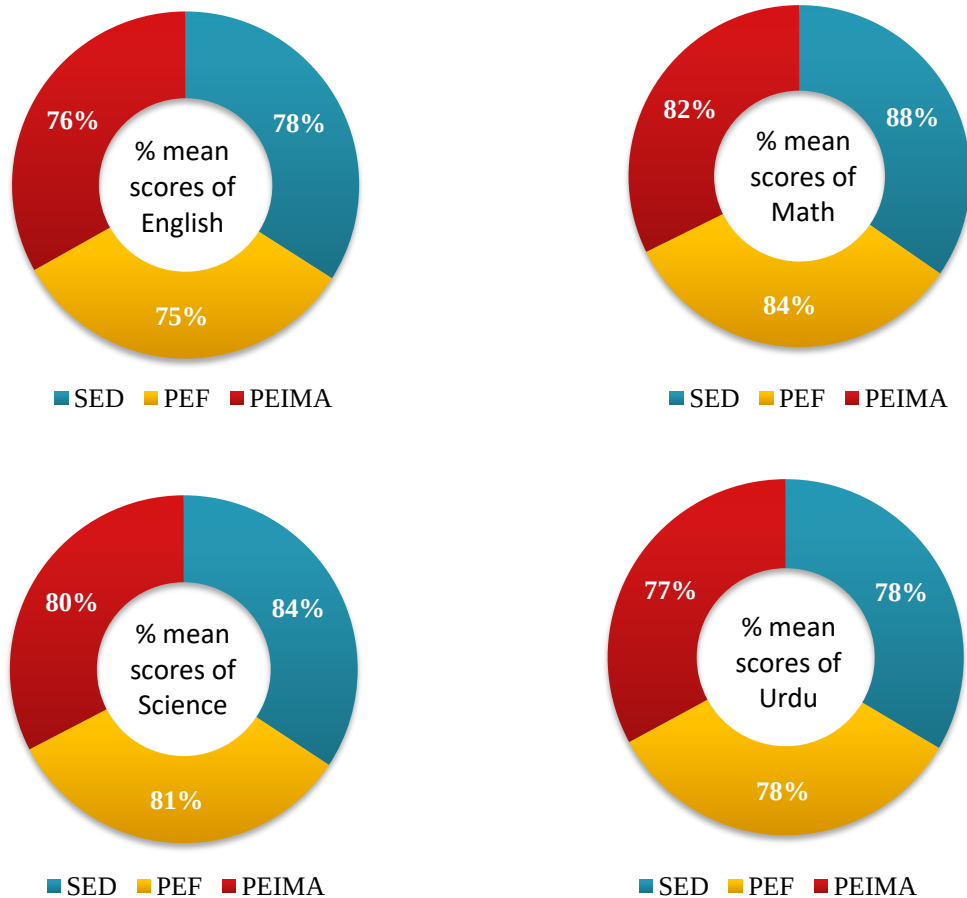
Figure 24: Overall Teachers' Performance in SED, PEF and PEIMA Administered Schools

Results show that teachers of SED schools have a better understanding of subject knowledge than teachers of PEF and PEIMA schools. This also translates in the scores of students, as the students of SED schools are performing much better than other schools.



3.4.4 SUBJECT-WISE TEACHERS' PERFORMANCE IN SED, PEF, AND PEIMA SCHOOLS

Figure 25: Subject-wise Teachers' Performance in SED, PEF and PEIMA Administered Schools



Findings of 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 English and Urdu.

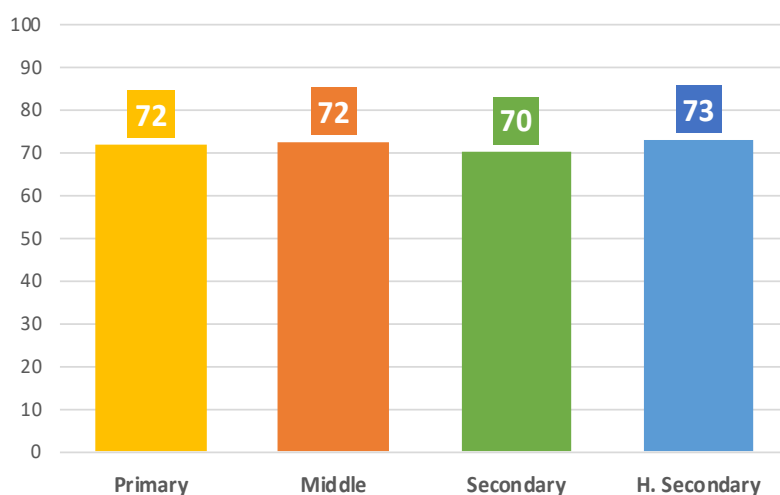
3.5.

PERFORMANCE OF DIFFERENT LEVELS OF SCHOOLS

3.5.1 STUDENT'S PERFORMANCE IN PRIMARY, MIDDLE, SECONDARY, AND HIGHER SECONDARY SCHOOLS

Figure 26: Overall Students' Performance in Primary, Middle, Secondary and Higher Secondary Schools

The figure shows the overall mean score percentage of Primary, Middle, Secondary, and Higher Secondary schools.

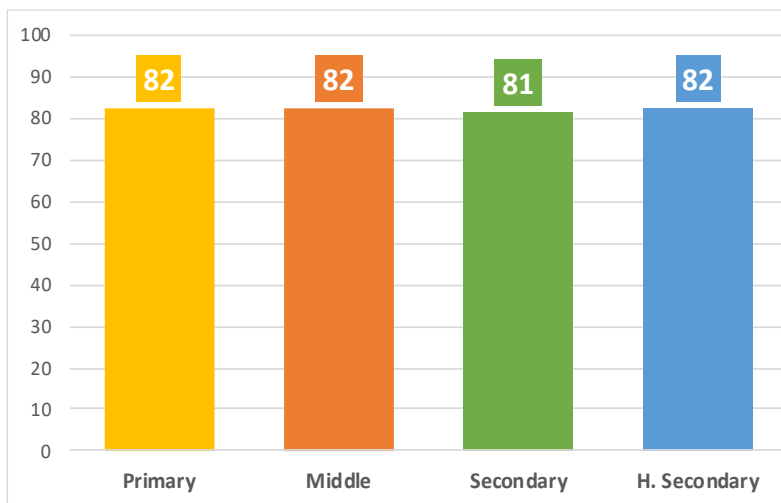


Student scores show that the Higher Secondary schools are best performing schools.

3.5.2 TEACHERS' PERFORMANCE IN PRIMARY, MIDDLE, SECONDARY, AND HIGHER SECONDARY SCHOOLS

Figure 27: Overall Teachers' Performance in Primary, Middle, Secondary and Higher Secondary Schools

The figure shows the overall teachers' performance in Primary, Middle, Secondary, and Higher Secondary schools.



3.6.

PERFORMANCE COMPARISON OF DISTRICTS

3.6.1 RANKING OF DISTRICTS BASED ON STUDENTS' %AGE SCORES

Table 6: The table below shows a ranking of districts based on the subject-wise performance of students. The table shows that Muzaffar Garh and Vehari are the top performing districts, while Mandi Bahauddin and Gujrat are worst performing districts.

	ENGLISH		MATHS		SCIENCE		URDU		OVERALL	
1.	Muzafar Garh	79	Muzafar Garh	83	Muzafar Garh	80	Muzafar Garh	84	Muzafar Garh	82
2.	Narowal	77	Rajanpur	82	Sheikhupura	74	Vehari	78	Vehari	76
3.	Vehari	75	Narowal	82	Narowal	73	Rajanpur	75	Narowal	76
4.	Khanewal	75	DG Khan	81	Gujranwala	72	NankanaSahib	74	Rajanpur	75
5.	Rajanpur	75	Vehari	80	DG Khan	72	Okara	74	Khanewal	74
6.	Jhang	74	Multan	80	Vehari	72	Chakwal	73	DG Khan	74
7.	Sialkot	74	Khanewal	79	Bahawalnagar	71	Khanewal	73	Okara	74
8.	Sargodha	74	Bahawalnagar	79	Multan	71	Gujranwala	72	Sialkot	74
9.	Okara	74	Chakwal	79	Rahimyar Khan	71	Sialkot	72	Bahawalnagar	74
10	Bahawalnagar	74	Sialkot	78	Sialkot	71	Narowal	72	Chakwal	74
11	Khushab	73	Jhang	78	Rajanpur	71	Khushab	72	Sheikhupura	73
12	Gujranwala	73	Sheikhupura	78	Hafizabad	70	Sheikhupura	72	Gujranwala	73
13	DG Khan	73	Okara	78	Chakwal	70	DG Khan	72	Khushab	73
14	Chakwal	73	Layyah	77	Okara	70	Bahawalnagar	71	Sargodha	73
15	T.T Singh	72	Sargodha	77	Khanewal	70	Lodhran	71	Jhang	73
16	Kasur	72	Khushab	77	NankanaSahib	70	Multan	71	NankanaSahib	72
17	Sheikhupura	72	Kasur	77	Lodhran	69	Kasur	71	T.T Singh	72

18	Faisalabad	71	T.T Singh	77	T.T Singh	69	T.T Singh	71	Kasur	72
19	Rahimyar Khan	71	NankanaSahib	77	Layyah	69	Faisalabad	70	Multan	72
20	Hafizabad	71	Lodhran	76	Sargodha	69	Sargodha	70	Layyah	71
21	Sahiwal	70	Gujranwala	76	Kasur	69	Attock	70	Lodhran	71
22	NankanaSahib	70	Pakpattan	76	Khushab	69	Layyah	70	Faisalabad	71
23	Mianwali	70	Faisalabad	76	Jhang	68	Mianwali	70	Hafizabad	71
24	Lodhran	70	Bahawal Pur	75	Pakpattan	67	Jhang	70	Sahiwal	70
25	Attock	70	Mianwali	75	Sahiwal	67	Sahiwal	70	Rahimyar Khan	70
26	Layyah	69	Hafizabad	75	Faisalabad	67	Lahore	70	Mianwali	70
27	Lahore	69	Sahiwal	75	Bahawal Pur	67	Bahawal Pur	69	Attock	70
28	Rawalpindi	68	Rahimyar Khan	74	Chinot	67	Hafizabad	69	Bahawal Pur	69
29	Pakpattan	68	Bakhar	73	Lahore	66	Chinot	69	Lahore	69
30	Chinot	67	Chinot	73	Mianwali	66	Bakhar	69	Pakpattan	69
31	Bahawal Pur	67	Lahore	73	Attock	66	Rahimyar Khan	67	Chinot	69
32	Multan	67	Attock	72	Jhelum	65	Jhelum	67	Bakhar	68
33	Jhelum	67	Rawalpindi	70	Rawalpindi	65	Pakpattan	66	Jhelum	67
34	Bakhar	66	Jhelum	70	Bakhar	64	Gujrat	66	Rawalpindi	67
35	Gujrat	66	Gujrat	68	Gujrat	61	Rawalpindi	64	Gujrat	65
36	Mandi Baha Uddin	64	Mandi Baha Uddin	68	Mandi Baha Uddin	61	Mandi Baha Uddin	60	Mandi Baha Uddin	63

3.6.2 RANKING OF DISTRICTS BASED ON TEACHERS' %AGE SCORES

Table 7: The figure below shows a ranking of districts based on the subject-wise performance of teachers. The ranking can be helpful in assessing the training needs of the teachers. The table shows that Okara and Khanewal are among the top performing districts, while the teachers from DG Khan and Pakpattan achieved some of the lowest scores.

	ENGLISH		MATHS		SCIENCE		URDU		OVERALL	
1.	Okara	86	Okara	91	Chakwal	87	Gujranwala	85	Okara	86
2.	Khanewal	85	Sheikhupura	91	Mianwali	87	Muzafar Garh	84	Khanewal	86
3.	Narowal	83	Khanewal	91	DG Khan	87	Khanewal	84	Bahawalnagar	84
4.	NankanaSahib	83	Rajanpur	91	Lodhran	86	DG Khan	83	Mianwali	84
5.	Bahawalnagar	82	Sialkot	91	Vehari	86	Sargodha	83	NankanaSahib	83
6.	Faisalabad	82	Rahimyar Khan	91	Khushab	86	Okara	83	Kasur	83
7.	Mianwali	82	Vehari	91	Khanewal	86	Lodhran	83	Sargodha	83
8.	Sheikhupura	82	T.T Singh	90	Sialkot	85	Layyah	82	Khushab	83
9.	Sialkot	82	Kasur	90	Kasur	85	NankanaSahib	82	Vehari	83
10	Sargodha	82	Sahiwal	90	Bahawalnagar	85	khushab	82	Sheikhupura	83
11	Kasur	81	DG Khan	90	Rawalpindi	85	Rahimyar Khan	82	Sialkot	83
12	Gujrat	81	Chinot	90	Narowal	85	Bahawalnagar	81	Lodhran	83
13	Muzafar Garh	81	Multan	89	Bakhar	85	Hafizabad	81	Gujranwala	83
14	Vehari	81	Mianwali	89	T.T Singh	85	Gujrat	81	Layyah	83
15	khushab	80	Muzafar Garh	89	Sheikhupura	85	Jhang	81	Rahimyar Khan	83
16	T.T Singh	80	Chakwal	89	Jhelum	84	Mianwali	80	Muzafar Garh	83
17	Layyah	79	Lodhran	89	Okara	84	Rajanpur	80	Gujrat	82
18	Attock	79	Bahawalnagar	89	Rajanpur	84	Kasur	79	DG Khan	82
19	Sahiwal	79	Layyah	88	Muzafar Garh	84	Mandi Baha Uddin	79	Narowal	82
20	Jhang	79	Bakhar	88	Gujranwala	84	Lahore	79	Faisalabad	82
21	Rawalpindi	79	Rawalpindi	88	Jhang	84	Jhelum	79	T.T Singh	82
22	Bahawal Pur	79	Khushab	88	Layyah	84	Chinot	79	Rajanpur	82

23	Rahimyar Khan	78	Gujranwala	88	Lahore	84	Vehari	79	Jhang	82
24	Chakwal	78	Attock	87	NankanaSahib	83	Faisalabad	79	Hafizabad	81
25	Gujranwala	78	Hafizabad	87	Gujrat	83	Pakpattan	78	Chakwal	81
26	Lodhran	78	Faisalabad	87	Hafizabad	83	Sialkot	78	Sahiwal	81
27	Lahore	78	Jhelum	87	Sahiwal	83	Sheikhupura	78	Chinot	81
28	Rajanpur	78	Gujrat	87	Multan	83	T.T Singh	77	Lahore	80
29	Pakpattan	77	Jhang	87	Chinot	83	Bahawal Pur	77	Rawalpindi	80
30	Multan	77	Sargodha	86	Sargodha	83	Narowal	77	Bahawal Pur	80
31	Hafizabad	77	Mandi Baha Uddin	86	Rahimyar Khan	83	Chakwal	76	Multan	80
32	Mandi Baha Uddin	76	Bahawal Pur	86	Faisalabad	82	Attock	75	Jhelum	80
33	Chinot	76	Narowal	85	Mandi Baha Uddin	82	Multan	75	Attock	80
34	DG Khan	75	NankanaSahib	85	Bahawal Pur	82	Sahiwal	75	Mandi Baha Uddin	80
35	Jhelum	74	Pakpattan	85	Pakpattan	82	Bakhar	74	Pakpattan	80
36	Bakhar	71	Lahore	84	Attock	80	Rawalpindi	74	Bakhar	78

SECTION 3

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. Both simple linear regression and multiple regression were used to assess the relationship between variables.

Categorical data was analyzed by creating dummy variables. However, some categorical variables were treated as continuous variables, e.g., educational qualification was converted into continuous variable by using years of education completed. Insignificant results are provided in a table at the end of the regression results.

3.7.

STUDENT SCORES 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.

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

ACADEMIC QUALIFICATION

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

It was found that an increase in the qualification by one level, raised students' scores for all subjects by varying number of points as shown in table below. Therefore, teachers' academic qualification has a significant positive effect on students' academic performance.

Math	Science	English	Urdu
15.157738	0.71107567	0.91217401	0.19775247

PROFESSIONAL QUALIFICATION

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

It was found that an increase in teacher professional qualification by one level, raised students' scores for all subjects (see table below). This indicates a significant positive relationship between teachers' professional qualification and students' academic performance. The impact was especially significant for Math, resulting in a raise of 7.16 points in scores with each level increase in qualification.

Math	Science	English	Urdu
7.16729526	0.59325177	1.03251119	0.26467623

TEACHING EXPERIENCE

The students taught by teachers having more teaching experience showed lesser learning achievement.

For every additional year of teaching experience, students' scores dropped by some points for each subject as shown in table below. The scores dropped by 2.34 points for Math and 0.19 points for Science. This indicates a negative relationship between teachers' teaching experience and students' academic performance. The existing literature has reported mixed results regarding the role of teaching experience in improving student learning (*see discussion section below*).

Math	Science	English	Urdu
-2.3392137	-0.1882712	-0.1699427	-0.1128145

PARTICIPATION IN CPD PROGRAMS

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

Participation of teachers in CPD programs was found to have significant impact on student scores. Each unit increase in participation in CPD Programs, led to an increase of 1.81 points in student performance.

GENDER IMPACT

The performance of male and female teachers is almost equal for all subjects, except Mathematics. Male teachers performed exceptionally higher in Math.

Test results of male teachers in the sample were compared with those of female teachers, keeping all other variables constant. It was found that the male teachers were performing significantly better in Math, while female teachers were performing slightly better in other subjects.

TEACHING PRACTICES

These 16 classroom practices– Audio-visual (AV) aids, teaching strategies and teachers' supportive attitude has a positive and significant effect on students' learning

- Use of Whiteboards
- The Activity-based Teaching-Learning Process
- Outdoor Activities
- Teaching Using Models
- Teaching Using Pictures
- Teacher Asking Questions
- Students Asking Questions
- Teacher Responds to Student's Question
- Daily Homework
- Creative Homework
- Taking Written Tests in Class
- Assigning Group Tasks to Students
- Identifying Mistakes and Feedback for Improvement
- Teacher as a Problem Solver
- Friendly Behavior with Students
- Contacting Parents of Weak Students

It was found that the use of whiteboard, conducting outdoor activities, allowing questions during lecture, and using models, charts, and pictures in class, had comparatively greater impact on the scores of students in subjects of Science and Math.

IMPACT OF LANGUAGE OF TEACHING

The teachers who use multiple languages (mix of Urdu, English and Local languages) in classrooms, their students perform better in Math and Science.

The analysis for the impact of languages used in teaching on the scores of Math and Science showed that the use of a mix language approach was positively correlated with student scores and led to better performance instead of reliance on single language.

IMPACT OF MULTI-GRADE TEACHING

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

Multi-grade teaching has a negative effect on students' learning achievements. An increase in the practice of multi-grade teaching by one unit, leads to a decline in student scores by 2.35 points.

3.8.

RELATIONSHIP BETWEEN STUDENT SCORES AND SCHOOL FACILITIES AND RESOURCES

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.

PROVISION OF BASIC FACILITIES

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

The provision of basic facilities (electricity, washrooms, fans, lights, and water) was found to be positively correlated with student performance. It was found that nearly 96% of schools had these facilities.

SUBJECT SPECIALIST TEACHERS' AVAILABILITY

The availability of subject specialist teachers leads to higher student scores.

Availability of subject specialist teachers has positive impact on student performance. It was found that nearly 40% schools lack subject specialist teachers.

SPORTS OPPORTUNITIES

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

Sports opportunities for students are significantly linked to the student performance. With each unit increase in opportunities to participate in different types of sports activities, there was an increase of 5.16 points in student scores.

SCHOOL LIBRARY

The availability of a school library is significantly positively linked to student performance.

School library availability for students is significantly positively linked to the student performance. However, less than 37% schools have this facility.

3.9.

RELATIONSHIP BETWEEN STUDENT SCORES AND SCHOOL LEADERSHIP RELATED FACTORS

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:

MENTORING OF TEACHERS BY HEAD TEACHER

The involvement of Head Teacher in helping their teachers has a positive effect on students learning achievement.

Help of Head Teachers to their teachers has a significant slightly positive effect on students' academic performance. As the practice of mentoring by Head Teacher increased, student scores also increased by certain points (see figure below) for each subject.

Math	Science	English	Urdu
9.7743728	0.679	1.07	0.612

REPORTS OF TEACHERS BY HEAD TEACHER

The gathering of teacher's performance reports by the Head Teacher is positively linked to student performance.

The gathering of teacher's performance reports by the head teacher is positively linked to student performance. Each unit increase in report gathering by head teacher, there was an increase of 0.86 points in student scores.

ENGAGEMENT OF PARENTS BY HEAD TEACHER

The schools in which the head teacher maintains engagement with parents, its students score higher than those of other schools

With each unit increase in parent engagement by the head teacher, an increase of 0.91 points in student scores was observed. The activity of sending student observation reports to parents is also positively linked to student performance.

CLASSROOM INSPECTION BY AEO

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

Classroom inspection by AEO is significantly linked to student performance. The schools where AEOs observe classrooms twice a month scored 2.23 points higher than schools where it is lesser. Therefore, bi-monthly AEO school visits have a significant effect on students' academic performance.

CLASSROOM INSPECTION BY MEA

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

Classroom inspection of MEAs is positively linked to student performance. The schools where MEAs observe classrooms scored 1.36 points higher than schools where they didn't.

LESSON PLANNING

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

Lesson planning has a significant positive effect on students' academic performance. As the practice of lesson planning by teachers increases, it leads to 3.24 units increase in student performance. In schools where Head Teacher checks lesson planning, student performance was further higher by 2.23 points with each unit increase in Head Teacher's inspections. This shows the importance of oversight by the Head Teacher.



ENGAGEMENT OF SCHOOL COUNCILS IN LEARNING DECISIONS

The regular discussion of school councils on students' performance and co-curricular activities has positive effect on learning.

The regular discussion of school councils on matters mentioned above has a positive and significant effect in determining students' learning achievement. Each unit increase in discussions on students' performance led to increase in student scores by 4.42 units. The student scores also increase with each increase in number of meetings held in a month by 1.54 points.

3.10.

RELATIONSHIP BETWEEN STUDENT SCORES AND PARENTS RELATED FACTORS

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:

PARENTS' QUALIFICATION

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

It was found that an increase in the qualification of the father by one level, raised students' performance scores by 0.70 points and an increase in the qualification of the mother by one level raised students' performance scores by 0.69 points.

STUDY AT HOME

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

The data revealed that an increase in the time given by the students at home on studies by one hour, raised students' scores by 2.16 points. The effect of study at home has significant effect on students' learning achievements.

AVAILABILITY OF COMPUTER AND OTHER STUDY AIDS AT HOME

The availability of computer or tablet at home was found to have significant impact on students performance.

Availability of computer or tablet at home was found to have significant impact on students performance. The data revealed that availability of computer at home raised students' scores. Similarly, availability of study table and chair at home also positively impacts student performance. Access to television was also found to have significant positive impact on student performance. Only a small number of respondents had internet availability (18%) in their homes, and it was found to be positively impacting student scores.

PARENTS STAYING IN CONTACT WITH SCHOOL REGARDING STUDENT PERFORMANCE

Parents staying in touch with teachers about their student's performance was found to have a significant impact on the performance of students.

The data showed that the practice of parents staying in touch with teachers regarding student's performance increased student scores by 9.36 points. It has a significant positive impact on the performance of students.

READING BOOKS OTHER THAN SYLLABUS BOOKS

The student's access to books other than syllabus books was found to have a significant impact on their performance.

The child's access to books other than syllabus books was found to have a significant impact on the performance of students. The data showed that an increase in the number of books read by a student other than the syllabus books, led to 3.59 units increase in their exam scores.



3.11.

Other Score Increasing Factors

OTHER SCORE INCREASING FACTORS

Following variables were found to have a significant positive relationship with the dependent variable, i.e., student scores.

- Provision of basic facilities (electricity, water, and washrooms) in the school
- Use of Teacher's Guide by Teachers
- Increased Access to School Council Funds/Grants/NSB
- Availability of Basic Resources (water, electricity, gas) at Home
- Student's Perception of Safety in School

3.12.

Key Insignificant Results

INSIGNIFICANT RESULTS

Following variables were found to have a positive but insignificant relationship with the dependent variable, i.e., student scores.

- Classroom Resources (white board, desks, and subject wise kits)
- Parents Income
- Access to Private Tuition

SECTION 4

FEEDBACK DATA

3.13.

INFRASTRUCTURE AND RESOURCES AVAILABLE

An effort was made in the LSA to gauge the level of infrastructure, study-aids, and other resources available in different schools.

It was found that majority of the school lack libraries, science kits, math kits, language kits, science rooms, and playgrounds. The number of classrooms is also inadequate in about 60% of the schools. There is also a serious shortage of teachers and grade 4 employees. Many schools lack subject specialist teachers.

Table 8: Infrastructure and Resource Availability Situation in Schools

Infrastructure/Resource Category	Availability in %age Schools	Infrastructure/Resource Category	Availability in %age Schools
Adequate Number of Classrooms	42	Science Kit	29
Adequate Number of Grade 4 Employees	44	Science Room	21
Adequate Number of Teachers	48	Security Arrangements	86
Clean Drinking Water	88	Shady Trees	82
Electricity	97	SNC Copies	90
First Aid Box	85	Subject Specialist - English	74
Furniture	93	Subject Specialist - Science	76
Language Kit	17	Subject Specialist - Urdu	66
Library	37	Subject Specialist – Math	71
Math Kit	40	Teacher’s Guide	91
Playground	74	Washroom	96
School Boundary Complete	91	White Board	98
School Main Gate	94		

3.14.

CO-CURRICULAR ACTIVITIES

Although most of the schools are organizing some form of extra-curricular activities, it has been found that many schools have ignored some of the crucial extra-curricular activities which are necessary for the academic and personal development of a student.

Category	Conducted in %age Schools
Scouting/Girl Guide	31
Educational/Entertainment Tours	42
Science Exhibition	44
Poetry Competitions	45
Drama/Meena Bazar	47
Art Competitions	56
Science Quiz	65
Math Quiz	67
Essay Writing Competitions	69
Plantation Drives	76
Recitation Competitions	79
Debates Competitions	80
Sports Competitions	80
Hamd o Naat Competitions	88

(Table 9: Co-curricular Activities Organized in Schools)



3.15.

PARENTS' FEEDBACK AND DEMOGRAPHICS

Satisfaction with School

Parents were asked a series of questions to assess their level of satisfaction with the school and gather their feedback on ways to improve school performance.

- A large majority of parents was satisfied with the school's performance. The major reasons for parent dissatisfaction were the shortage or absence of teachers and lack of basic facilities at school.
- It was also known that almost half of the students avail private tuition, which raises serious questions about the quality and effectiveness of the learning being delivered at the schools.

Questions	% Age of Parents
Complete Satisfaction with School	61
Child Avails Private Tuition	47

Table 10: Major Reasons for Parents' Dissatisfaction with School

Major Reasons for Dissatisfaction with School	% Age of Parents
Shortage of Teachers	50
Teachers' Absence from School	29
Lack of Basic Facilities	21
Lack of Study Aids	9
Non-Satisfied with Teaching Methods Used	3

Suggestions for Improvement

Parents were asked to provide suggestions for improvement in schools. Majority of them wanted schools to have a hard-working Head Teacher and to engage parents in school's activities.

Table 11: Parents' Suggestions for School Improvement

Suggestions	% Age of Parents
Need to have a hard-working head teacher and decision-maker.	68
Need of engaging parents in school activities.	62
Need for timely distribution of textbooks to the students.	58
Need for regular visits to be made by the education department.	55

School Absenteeism

The responses show that a major reason for student absenteeism include crop harvesting and labor, to meet family needs. As most of the students belong to farming families (32%), there is a need for formal school vacations to coincide with the harvesting season, so students do not have to take leave from school.

Table 12: Major Reasons for Student Absenteeism

Reasons for Student Absenteeism	% Age of Students
Illness	86
Siblings Care	50
Crop Harvesting Season	40
Labor	25
Fighting at Home	22

Education Level

It was found that the majority of parents are not very well qualified, and a large number are completely illiterate. Only about 9% of the parents have attained education above matriculation. Similar results were found in case of mother's education where 33% of mothers are completely illiterate.

Guardian's Education	% Age of Parents
Illiterate	17
Primary	28
Middle	18
Matric	20
Intermediate	5
BA or Higher	6

(Table 13: Parents Education Level)

Mother's Education	% Age of Parents
Illiterate	33
Primary	29
Middle	13
Matric	12
Intermediate or Higher	12

(Table 14: Mother's Education Level)

Parent Occupation

Majority of parents are farmers (32%), followed by shopkeepers and traders (15%).

Major Occupations	% Age of Parents
Farmer	32
Shopkeeper/Trader	15
Private Job	14
Government Job	7
Unemployed	7

(Table 15: Parents Occupation)

Parent Income

The analysis of income level of parents shows that most of them are quite poor. Almost 45% of the households have incomes much less than the official minimum pay announced by the government. This is the main reason that most of the children have to take leave from school and contribute to the family income through their labor.

Income	% Age of Parents
Less than 5000	12
5000-10000	32
10001-20000	27
20001-40000	12
40000+	5

(Table 16: Parents Income)

Language Used with Child

Language Used at Home	% Age of Parents
Punjabi	53
Local	27
Urdu	20
English	0

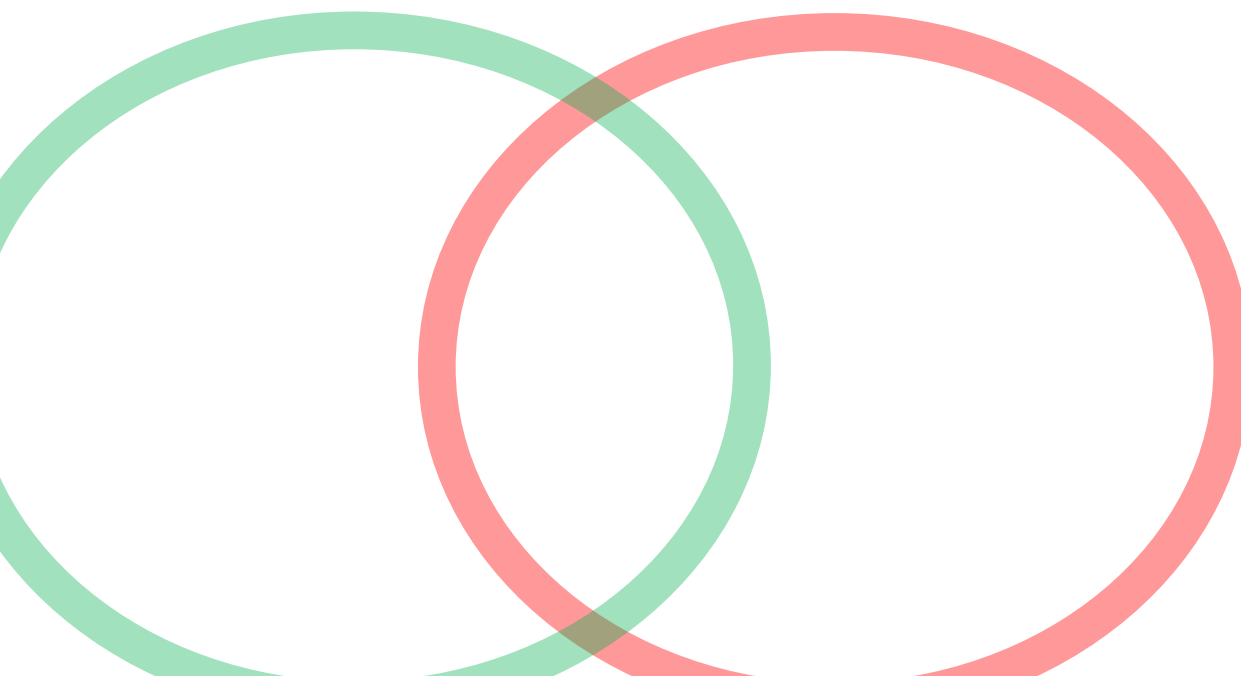
(Table 17: Language Used at Home with Child)

Resources Available at Home

The resource situation is not satisfactory as most of the households are poor with barely enough income to meet their basic needs.

Resources Available at Home	% Age of Parents
Computer	9
Car	9
Study Table/Chair	9
Internet/Cable	18
Gas	34
Motorcycle	63
TV	66
Mobile	79
Water	86
Electricity	92

(Table 18: Resources Available at Home)



3.16.

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.

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

Almost 40% of the teachers expressed dissatisfaction with their salary.

Questions	% Age of Teachers
Satisfaction with Salary	61
Willingly Chose Teaching as Profession	95

QUAIFICATION

Majority of the teachers have completed their bachelors or masters.

Academic Qualification	% Age of Teachers			
	MATHS	SCIENCE	ENGLISH	URDU
Matric	4	2	2	6
Intermediate	6	5	5	7
Bachelors	15	12	12	15
Masters	55	58	58	52
MS/MPhil	9	11	10	7
PhD	0	1	1	0

(Table 19: Academic Qualification of Teachers)

Professional Qualification	% Age of Teachers			
	MATHS	SCIENCE	ENGLISH	URDU
PTC	7	5	5	11
CT	3	3	3	4
Diploma (Education)	2	2	1	2
B.Ed.	46	47	46	41
M.Ed.	18	19	21	17
MA (Education)	3	3	3	3
MPhil (Education)	1	1	5	1
PhD (Education)	0	0	3	0

(Table 20: Professional Qualification of Teachers)

EXPERIENCE AND TRAINING

Majority of the teachers are young and inexperienced. This can be a good thing because the regression analysis (see previous section) has shown that the students' performance drops when they are taught by more experienced teachers. This also highlights the need for more training for the senior teachers, so that they can stay updated with modern teaching techniques.

Teaching Experience	% Age of Teachers			
	MATHS	SCIENCE	ENGLISH	URDU
1-5	32	37	29	26
6-10	22	24	22	17
11-15	9	9	11	11
15-20	8	7	10	10
20 +	19	14	19	26

(Table 21: Teaching Experience of Teachers)

Training Situation	
Number of Subject-related Training Course Completed	More than 70% have completed two or more.
Year of Last Professional Training	For more than 70% 2019-2020 was their previous year of training.

(Table 22: Training Situation of Teachers)

OPINION ABOUT 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	% Age in agreement			
	Math	Science	English	Urdu
According to the students' age and class	80	76	72	80
In simple language	75	70	63	80
With interesting activities	75	79	74	82
With appropriate exercises	87	84	84	88
With Appropriate font size	85	84	83	83
With interesting examples	76	84	81	83
With local examples	75	79	71	79

(Table 23: Teacher Feedback on Textbooks)

Most of the teachers are satisfied with the textbooks, however there is some concern about the simplicity of language used in the textbooks.

AEO INSPECTIONS

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

(Table 24: Frequency of AEO Inspections)

Frequency of AEO Inspections	% Age of AEOs
Once in a month	20
Twice in a month	59
Once in two months	3
Do not visit the class room	9

No uniform pattern of school visits was observed by AEOs.

Behavior of AEO	% Age of AEOs
Friendly	78
Very Strict	16

(Table 25: Behavior of AEO)

Majority of teachers stated that they receive feedback from AEOs after each observation visit, and they were also positive over the usability of this feedback in improving teaching.

Feedback on AEO Visit	% Age of AEOs
AEOs provide feedback after observation	81
The feedback given by AEOs helps improve teaching	81
AEOs conduct monthly forum meeting	75

(Table 26: Feedback on AEO Visit)

MEA INSPECTIONS

MEAs are required to visit schools for inspection. Responses of teachers over the frequency and nature of these visits are that:

(Table 27: Frequency of MEA Inspections)

Frequency of MEA Inspections	% Age of MEAs
Always	50
Often	37

Majority of the MEAs were found to have friendly behavior during their inspections.

Behavior of MEA	% Age of MEAs
Friendly	60
Very Strict	39

(Table 28: Behavior of MEA)

Majority of the MEAs follow the questionnaire guide during their inspections.

MEA Questioning	% Age of MEAs
Follows the Questionnaire Guide	90
Asks Personal Questions	3

(Table 29: Feedback on MEA Questioning)

LESSON PLANNING

Majority of the teachers are involved in weekly lesson planning.

Lesson Planning (% Age of Teachers)		
Subjects	Weekly	Monthly
Math	87	10
Science	86	10
English	83	9
Urdu	88	9

(Table 30: Lesson Planning by Teachers)

Teachers usually consult the teacher's guide or their peer teachers for support in lesson planning.

Teachers take support from the following during their lesson planning	% Age in Agreement			
	Math	Science	English	Urdu
AEO	2	1	3	2
Head Teacher	18	18	18	18
Peer Teachers	23	22	21	22
Teacher's Guide	51	51	53	51

(Table 31: Support Taken by Teachers in Lesson Planning)

TEACHING PRACTICES USED IN CLASSROOM

Teachers were asked a series of questions on their current teaching practices. The results show that majority of the teachers employ practices like using study aids in the classrooms, assigning group work to students, allowing questions during lecture, giving homework based on the taught lecture, and behaving in a friendly manner in the classroom.

Teaching Practices Used in Classroom	% Age in Agreement			
	Math	Science	English	Urdu
Use of Urdu Language in Instruction	95	94	91	96
Use of Local Languages in Instruction	7	8	12	7
Use of English Language in Instruction	18	9	20	- -
Use of Teaching Aids/Resources	96	96	96	96
Assign Group Work	96	95	94	95
Ask Questions While Teaching	98	97	98	98
Provide Opportunities to Students to Ask Questions While Teaching	98	98	98	98
Give Homework Related to the Lesson	97	96	96	96
Engage Students in Managing the Classroom Discipline	80	79	75	78
Discuss Weekly Students' Progress with Head Teacher	70	70	69	68
Friendly Behavior with Students	90	89	90	91

(Table 32: Teaching Practices in Classroom)

METHODS USED BY TEACHERS TO ASSESS CLASSROOM LEARNING

Methods Used by Teachers to Assess Classroom Learning	% Age of Teachers			
	Math	Science	English	Urdu
Oral (Question/Answers)	94	95	87	94
Written	95	94	87	94
Homework	94	92	86	93
Involvement in Classroom Activities	93	93	92	94

(Table 33: Methods to Assess Learning)

ENGAGEMENT WITH PARENTS

To understand engagement with parents, teachers were asked questions over their involvement in school matters.

Responses show that 85% of the teachers discuss students' progress with their parents on a monthly basis. Other discussion areas are given below:

Areas Discussed by Teachers with Parents	% Age of Teachers
Students' Performance in Studies	85
Student's Absenteeism	77
School Discipline	74
Co-curricular Activities	71

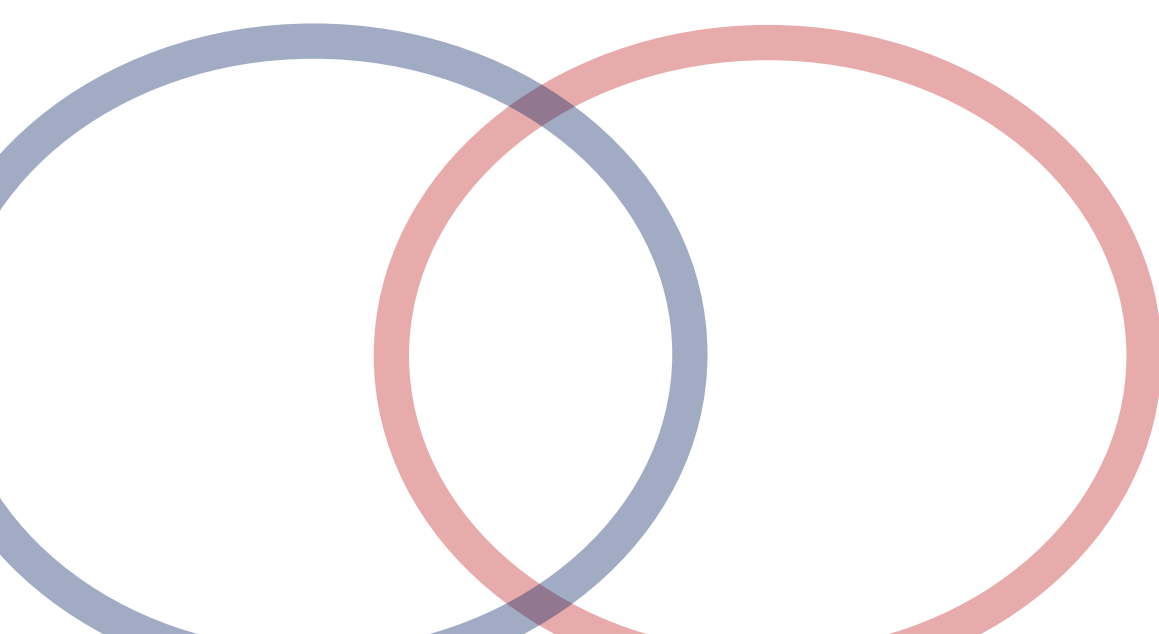
(Table 34: Areas Discussed by Teachers with Parents)

INVOLVEMENT IN SCHOOL ADMINISTRATION

Teachers were asked questions about their involvement in administration activities in school. 98% of the teachers get involved in solving student's problems. Other responses are given below:

Engagement of Teachers in School Administration	% Age of Teachers
Involvement in Solving Students' Problems	98
Discussion with Fellow Teachers to Improve Students' Learning	96
Meeting with Parents to Discuss Students' Issues	93
Handle School Administration	87

(Table 35: Teachers Engagement in School Administration)



FEEDBACK BY TEACHERS ON HEAD TEACHER'S PERFORMANCE

Teachers were asked questions about the performance of the Head Teachers of their schools. The findings highlighted that many head teachers did not invite guest speakers to talk about different topic and occasions.

Feedback of Teachers on Head Teacher's Performance	% Age of Teachers
Head teacher always follows the rules and regulations of the school.	97
Head teacher always makes an effort to bring improvement in the school.	97
Head teacher always guides teachers in their teaching.	95
Head teacher always remains in contact with parents to discuss school affairs.	90
Head teacher always invites guest speakers to talk on different topics/concepts.	74

(Table 36: Teachers' Feedback on Head Teacher's Performance)

MAIN TEACHING PRACTICES USED BY TEACHERS

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

Main Techniques Used

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

- 1 Questioning About the Taught Lesson
- 2 Asking Students to Experiment on Their Own
- 3 Encouraging Students to Think About Topic
- 4 Encouraging Observation
- 5 Encouraging Students to Work in Groups
- 6 Encouraging Students to Ask Questions

Major Homework Practices Used by Teachers

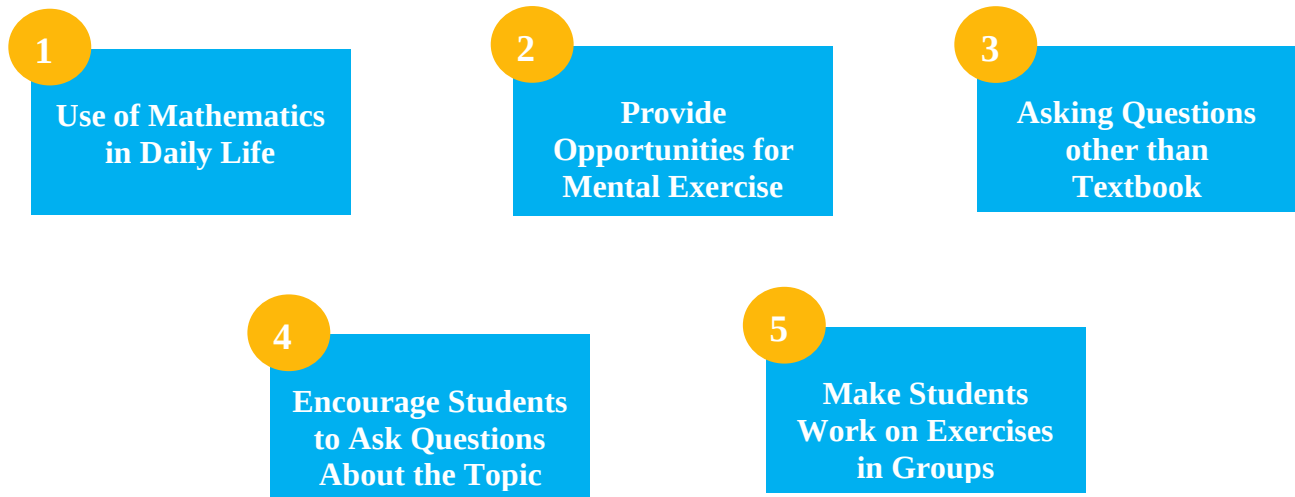
More than 75% of the teachers give the following as homework for Science subject:

- 1 Solve Exercises
- 2 Collect Information About the Topic
- 3 Perform Practical Experiments
- 4 Make Charts or Models
- 5 Read Material Other than Textbook

Teaching of Numeracy (Mathematics)

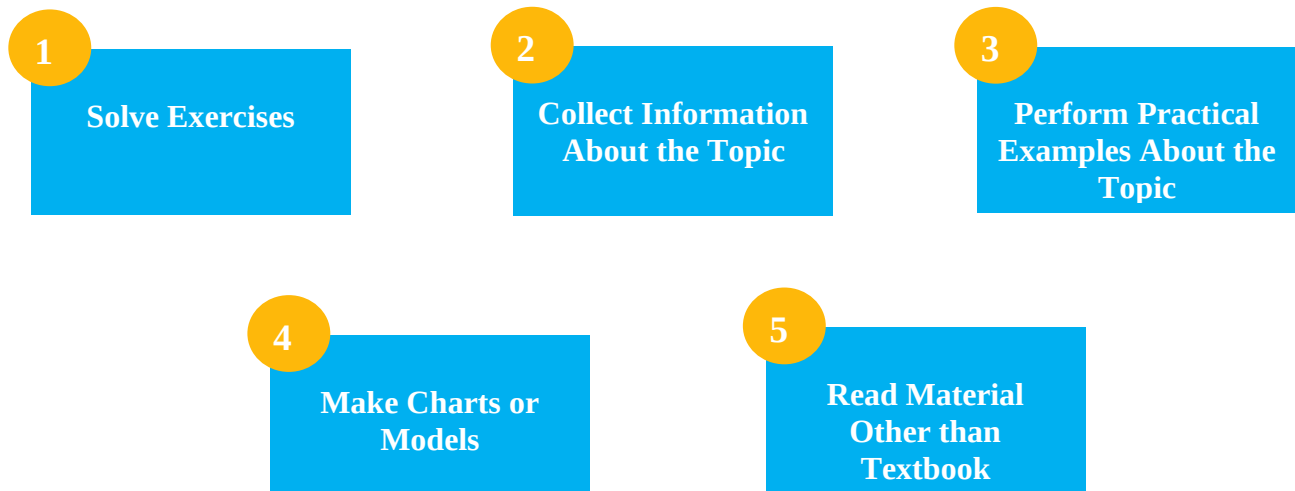
Main Techniques Used

Majority of the teachers (more than 85%) use the following technique for teaching Mathematics:



Major Homework Practices Used by Teachers

Majority of the teachers (more than 75%) give the following as homework for Mathematics:



Teaching of Literacy (English)

Main Techniques Used

Majority of the teachers use the following techniques for teaching English:

Translation
Method

95%

Direct Method

64%

Major Competencies Focused by Teachers

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

1

Reading

2

Writing

3

Listening

4

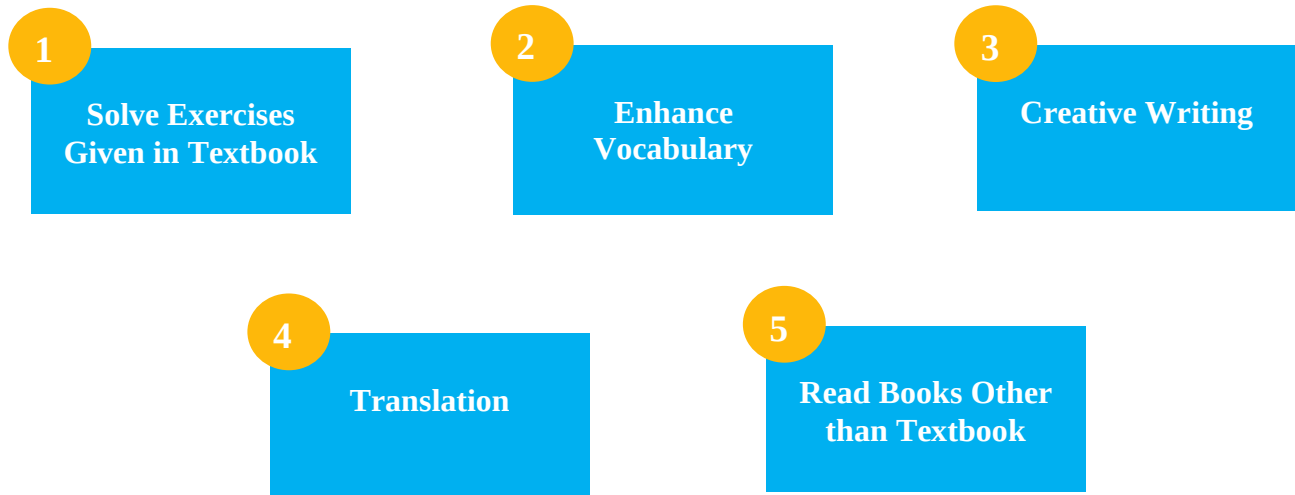
Speaking

5

Lexical

Major Homework Practices Used by Teachers

Majority of the teachers (more than 75%) give the following as homework for English:



Teaching of Literacy (Urdu)

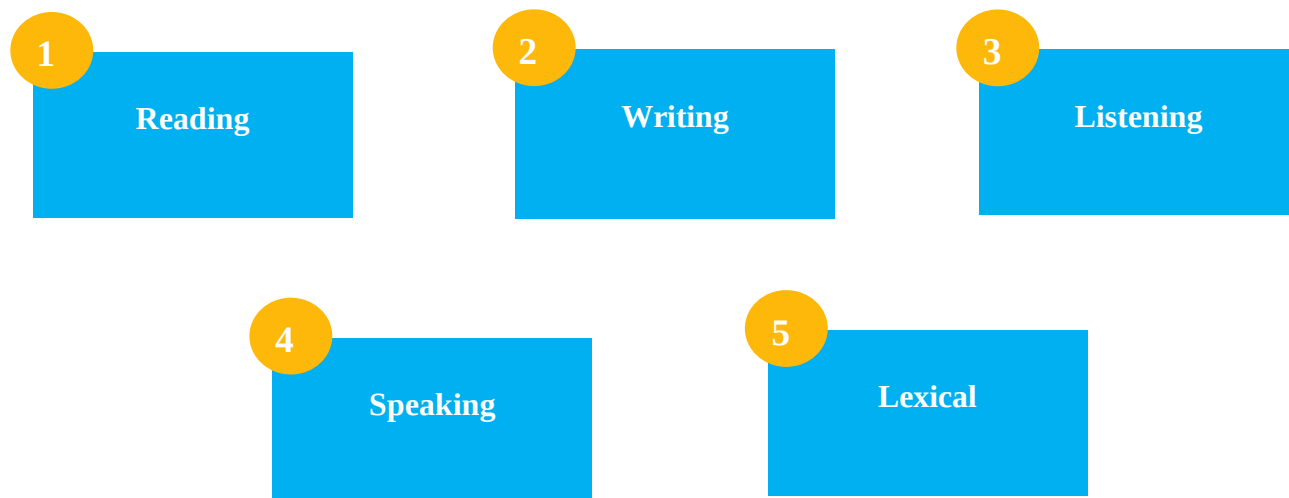
Main Techniques Used

Majority of the teachers use the following techniques for teaching Urdu:



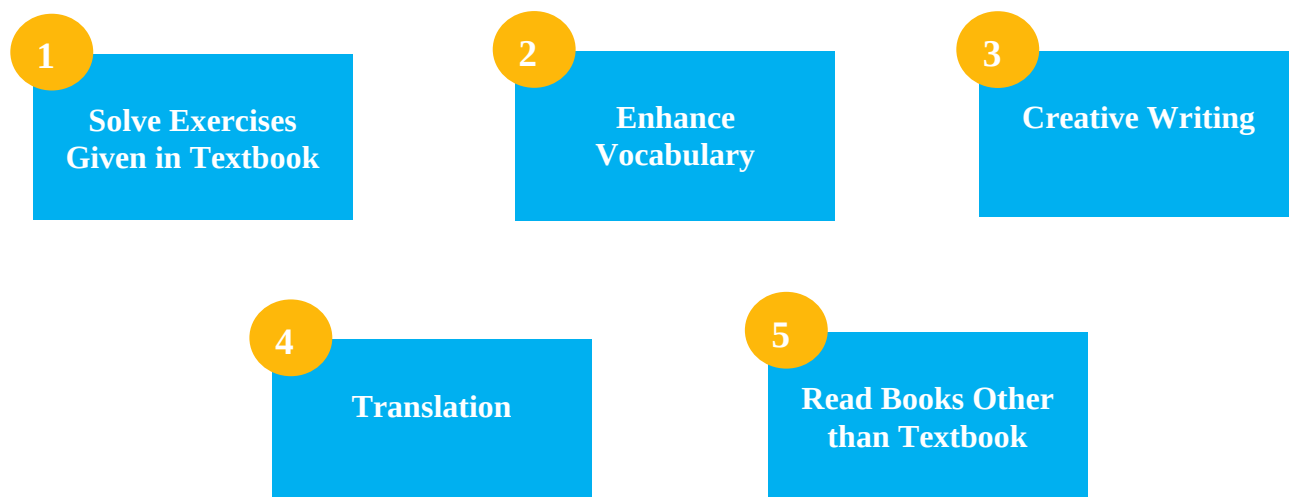
Major Competencies Focused by Teachers

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



Major Homework Practices Used by Teachers

Majority of the teachers (above 80%) give the following as homework for Urdu:



DIFFICULT TOPICS FOR TEACHERS

More than 70% of teachers find the topics in the **Science textbook easy. Breakdown of responses is given below.**

Topic-wise Difficulty Level in Science	% Age of Teachers Found it Easy	% Age of Teachers Found it Difficult
Space and Satellite	74	26
Electricity and Magnetism	78	22
Matter and its Physical and Chemical Changes	85	15
Structure of Earth	87	13
Microorganisms	89	11
Technology in Everyday	89	11
Light and Sound	90	10
Flower and Seed	93	7
Classification of Living Organisms	95	5
Environmental Pollution	95	5

(Table 37: Topic wise Difficulty Level in Science)

More than 84% of teachers find the topics in the **Mathematics textbook easy. Breakdown of responses is given below. They reported some difficulty in Geometry and Data Handling related questions.**

Topic-wise Difficulty Level in Mathematics	% Age of Teachers Found it Easy	% Age of Teachers Found it Difficult
Geometry	84	16
Data Handling	86	14
Perimeter and Area	90	10
Unitary Method	92	8
HCF and LCM	93	7
Fractions	93	7
Decimals and Percentages	93	7
Distance and Time	94	6
Whole Numbers and Operations	95	5

(Table 38: Topic wise Difficulty Level in Numeracy)

More than 70% of teachers find the topics in the **English** textbook easy. Breakdown of responses is given below. They reported some difficulty in handling topics related to creative writing and oral communication.

Topic-wise Difficulty Level in English	% Age of Teachers Found it Easy	% Age of Teachers Found it Difficult
Creative Writing	74	26
Oral Communication	81	19
Listening and Speaking Skill	84	16
Poems	85	15
Grammar	85	15
Essay Writing	85	15
Comprehension	86	14
Sentence Making	86	14
Dictation	87	13
Passages/Topics	92	8
Letter or Application	92	8

(Table 39: Topic wise Difficulty Level in English)

More than 80% of teachers find the topics in the **Urdu** textbook easy. Breakdown of responses is given below. They reported some difficulty in handling topics related to creative writing, grammar, and comprehension.

Topic-wise Difficulty Level in Urdu	% Age of Teachers Found it Easy	% Age of Teachers Found it Difficult
تخلیقی لکھائی	84	16
قوائد	85	15
تقریم	86	14
تشریح	90	10
مضمون نویسی	92	8
پڑھائی-نظم پڑھانا	94	6
بولنے اور پڑھنے کی صلاحیت	94	6
املاء	94	6
پڑھائی-نثر پڑھانا	95	5
جملہ سازی	95	5
خط یا درخواست	95	5

(Table 40: Topic wise Difficulty Level in Urdu)

3.17.

SCHOOL COUNCIL'S FEEDBACK

School councils were also asked to provide their inputs on their involvement in key areas of the school.

The council members were generally satisfied with the performance of the Head Teachers as well as other teachers.

Questions	% Age of Teachers
Satisfaction with Performance of Head Teacher	98
Satisfaction with Performance of Teachers	98

COUNCIL FUNCTIONAL OR DYSFUNCTIONAL

Council members were asked questions to judge whether the councils were working or not. Following table provides an overview of the number of meetings members of school councils have done in schools per month. It was found that almost half of the councils meet for only one or two times in a year, which reflects a general lack of importance given to their role in handling school affairs.

Council Functional or Not	% Age of Schools
Fully Functional	56
Mostly Functional	37
To some extent	3
Council is Dysfunctional	1

(Table 41: Extent to which School Council is Functional)

Number of Council Meetings During a Year	% Age of Schools
1 to 2	54
3 to 5	32
6 to 8	5
9 to 12	5

(Table 42: Frequency of School Council Meetings)

AREAS OF DISCUSSION IN COUNCIL MEETINGS

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

Areas of Discussion in Council Meetings	Always	Mostly
Budget Utilization	73	20
Increase in Students' Enrollment	73	21
Students' Performance	70	25
Student Education and Discipline	69	25
To Aid in Teaching-Learning Activity	51	37
School Infrastructure	49	40
Teachers Training	45	32
Financial Assistance of Poor Students (shoes, uniform)	41	37
Books and AV-Aids for school	39	37
Community's Participation in School Affairs	32	41
Sports Competitions in School	28	36

(Table 43: Areas of Discussion in Council Meetings)

SCHOOL COUNCIL PARTICIPATORY ACTIVITIES

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

School Council's Activities	% Age of Schools
Planning for the use of NSB funds	53
Improve School Discipline	38
Solve Students' Problems	37
School Construction Activity	29
Improve Teaching-learning Process	27
Hiring of Temporary Teachers	14

(Table 43: Council's Participatory Activities)

SUGGESTIONS BY SCHOOL COUNCIL FOR STRENGTHENING COUNCIL FUNCTIONING

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

Suggestions to Strengthen the Role of Councils	% Age of Responses by Members
Increased Cooperation with Teachers	47
Assigning Set Responsibilities to Each Member	44
Training Each Member	29
Improving the Teaching Environment	28
Collecting funds for the school	17
Increasing Members of the Council	7

(Table 45: Suggestions to Strengthen the Role of Councils)

SUGGESTIONS BY SCHOOL COUNCIL FOR UTILISATION OF NSB FUNDS

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

Suggestions for Usage of NSB Funds	% Age of Responses by Members
Improving Basic Facilities	67
Improving the Teaching-Learning Process	64
Purchase of School Uniforms and Shoes for Needy Students	40
Provision of Financial Support to Needy Children	38
Organizing of Sports Activities for Children	30
Awarding Students with Prizes/Incentives	26
Purchasing AV Aids	26
Recruitment of Temporary Teachers	23
Procurement of Science Lab Materials	18
Procurement of Library Books	14
Teachers' Training	10
Awarding Teachers with Prizes/Incentives	7

(Table 46: Suggestions for Usage of NSB Funds)

SECTION 5

DISCUSSION

3.18.

DISCUSSION OF FINDINGS

The overall student scores in LSA 2022 show improvement over LSA 2021¹⁶. Both male and female students performed higher in LSA 2022, with scores of 71% and 73% respectively, compared to LSA 2021 scores of 66% and 69%. Similarly, the subject-wise scores of students have also improved in all subjects as compared to last year. The improvement was especially notable in Mathematics in which student scores increased by nearly 9% as compared to those reported in LSA 2021.

The increase in scores in LSA 2022 as compared to LSA 2021 can be explained by the disruption caused by Covid-19. Coronavirus' impact was much more severe in academic year 2020-21 which may have led to a drop in the student scores for that year. This drop in student performance due to the pandemic has been observed worldwide (Kuhfeld, Soland, & Lewis, 2022)¹⁷.

Another notable feature of LSA is the higher scores of female students as compared to male students. The overall and subject-wise scores of female students have remained slightly higher in LSA 2022 as was the case in LSA 2021. However, in Mathematics, both male and female students have achieved similar scores.

The results of performance in cognitive domains show considerable improvement over LSA 2021, however, the poor performance in Application based questions has continued in LSA 2022 as well. Students performed poorly in all subjects for questions testing application of knowledge. There was no significant difference in the performance of boys and girls in cognitive domains.

Students scored much higher in MCQs type questions (79%) as compared to CRQs (67%). Similar gap in scores was observed in scores for all subjects. This is in line with other tests of

¹⁶ Punjab Examination Commission, 2021. LSA Grade 5.

¹⁷ Kuhfeld, M., Soland, J., & Lewis, K. (2022). Test score patterns across three COVID-19-impacted school years. *EdWorkingPaper*: 22-521, 37-62.

this nature, for instance, students score higher in the MCQs portion of OECD's Program for International Student Assessment (PISA) which involves both MCQs based questions and questions requiring detailed answers (PISA, 2018)¹⁸.

The performance of students improved in reading fluency tests in LSA 2022 as compared to LSA 2021. Students were able to read, on average, 86 and 115 words per minute for English and Urdu respectively. This is higher than the results of LSA 2021, when students were able to read 65 and 89 words in English and Urdu. A drop in performance was seen in student performance in listening skills assessment. Students scored 74% and 80% in English and Urdu respectively which is less than their scores of 88% and 86% in LSA 2021.

As far as performance of teachers is concerned, the overall score achieved by teachers is 81%, which is slightly lower than their score in LSA 2021 (83%). The performance of male and female teachers was similar in all subjects except Mathematics, in which male teachers scored higher (89%) as compared to female teachers (86%). The performance of teachers was much higher as compared to students, despite improvement in student scores in compared to LSA 2021.

A comparison of schools based on their school administration revealed that SED schools were performing better than PEF and PEIMA administrated schools. Similar trend was observed in the scores of teachers as well. This finding is similar to the findings of LSA 2021. A comparison of different levels of schools (primary, middle, secondary, and higher secondary) revealed that higher secondary schools performed slightly better compared to other schools, while performance of secondary schools was slightly lower.

LSA 2022 provides a ranking of districts based on the subject-wise performance of students as well as teachers. The students' scores show that Muzaffar Garh and Vehari are the top performing districts, while Mandi Bahauddin and Gujrat are worst performing districts. Teachers' scores reveal that Okara and Khanewal are among the top performing districts.

The results of the LSA 2022 can be compared with the results of an independent organization, South Asian Forum for Education Development (SAFED), that has been conducting sample-based learning assessments in Pakistan for last few years. SAFED produces an Annual Status of Education Report (ASER)¹⁹ at national level as well as for each province. The report by SAFED assesses the learning levels of grade 5 students in English, Urdu, and Mathematics. The learning levels of students reported by ASER 2021 are almost similar to those reported in LSA 2022 for English and Urdu. However, in Mathematics, ASER 2021 only tested students based on their arithmetic skills, and the results show that the learning levels reported for arithmetic skills in LSA 2022 are a bit higher (75%) than those reported in ASER 2021 (70%). The situation of facilities (water, toilet, and boundary wall) reported by LSA 2022 is also similar to those reported by ASER 2021.

Regression analysis has been used to assess the relationship of various factors with student scores. Results show that teacher-related factors like academic and professional experience, and use of study aids in classrooms positively impact student learning. Results also show the importance of basic facilities (water, electricity, toilets) and study resources (books, computers,

¹⁸ Schleicher, A. (2019). PISA 2018: Insights and Interpretations. *oecd Publishing*.

¹⁹ South Asian Forum for Education Development, 2021. *Annual Status of Education Report*.

labs, libraries, suitable classroom furniture) in increasing student learning. There is a large body of research that supports these findings (Glewwe et al. 2011²⁰; Bacolod and Tobias 2006²¹; Hanushek 1995²²; Glewwe and Jacoby 1994²³).

A notable result from the regression analysis is the negative impact of teaching experience on student scores. LSA 2021 also showed similar result. This is supported by much of global research which argues that school teachers peak in their effectiveness gains quite early in their careers and teaching experience does not add to their effectiveness afterwards (Graham et al., 2020).²⁴ However, recent studies have tried to dispel this notion and argued that teaching experience does increase the effectiveness of a teacher and is positively linked to student scores throughout the teaching career of a school teacher (Kini & Podolsky 2016²⁵; Kraft, Papay, & Chi 2019²⁶). Literature also shows that teaching experience is positively linked to students achieving higher in non-study related measures of academic success, for instance, student attendance (Ladd & Sorensen, 2017²⁷). Lastly, experienced teachers are an asset for the school as well, as they can handle various administrative tasks.

The data has found family income to be an insignificant determinant of student scores. However, this finding goes against the existing research (Campbell, 2012²⁸). It should be noted that LSA 2021 had also found parent income to be an insignificant determiner of student scores. The reason for this can be that more than 90% of the households are poor and at a similar level of income and lifestyle. Hence, the lack of variation in the data led to the above results.

Parents education has been found to have a significant impact on student scores. The findings are consistent with the existing research which has found that both mother and father's education level has a major impact on the performance of students (Abuya, Mutisya & Ngware, 2015²⁹, Wilder, S. 2014³⁰; Campbell 2012).

Lastly, the regression results show the importance of school leadership and effective monitoring in increasing student scores. The AEO, MEA, and Head Teacher in monitoring and actively aiding teachers in their teaching is positively linked with student learning.

The study of literature has revealed various factors which are important for student learning, but their data was not collected in LSA 2022. Chronic absence of students is a major factor in determining student scores and data needs to be collected in future LSAs about the percentage of students who are chronically absent from school, i.e., missing 10% or more of the classes. A research-based report by US organization, Attendance Works (2019)³¹, titled 'Using Chronic Absence Data to Improve Conditions for Learning,' has shown that chronic absence and student learning are closely linked. The Hamilton Project, launched by Brookings, has been collecting updated data on chronic absence in USA.

²⁰ Glewwe, P. W., Hanushek, E. A., Humpage, S. D., & Ravina, R. (2011). School resources and educational outcomes in developing countries: A review of the literature from 1990 to 2010.

²¹ Bacolod, M. P., & Tobias, J. L. (2006). Schools, school quality and achievement growth: Evidence from the Philippines. *Economics of education review*, 25(6), 619-632.

²² Hanushek, E. A. (1995). Interpreting recent research on schooling in developing countries. *The world bank research observer*, 10(2), 227-246.

²³ Glewwe, P., & Jacoby, H. (1994). Student achievement and schooling choice in low-income countries: Evidence from Ghana. *Journal of Human Resources*, 843-864.

²⁴ Graham, L. J., White, S. L., Cologon, K., & Pianta, R. C. (2020). Do teachers' years of experience make a difference in the quality of teaching?. *Teaching and teacher education*, 96, 103190.

Sense of safety in school was found to have significant influence on student learning. This is also supported by existing literature (Campbell, 2012). Physical and emotional health and feeling of safety are important conditions for effective learning. Other factors like sense of belonging and connectedness and support also play an important role in determining student learning. In future LSAs, data needs to be collected about the teacher's behavior in class and whether students are able to feel the level of connectedness and support that is required for their learning.

Findings show that nearly 22% of the students have to take leave due to conflicts at home. Literature shows that having a peaceful and supportive environment at home is important for student learning. Future LSAs should feature questions in order to directly investigate the number of students who are experiencing conflicts at home and how it impacts their learning.

²⁵ Kini, T., & Podolsky, A. (2016). Does Teaching Experience Increase Teacher Effectiveness? A Review of the Research. *Learning Policy Institute*.

²⁶ Kraft, M. A., Papay, J. P., & Chi, O. L. (2020). Teacher skill development: Evidence from performance ratings by principals. *Journal of Policy Analysis and Management*, 39(2), 315-347.

²⁷ Ladd, H. F., & Sorensen, L. C. (2017). Returns to teacher experience: Student achievement and motivation in middle school. *Education Finance and Policy*, 12(2), 241-279.

²⁸ Campbell, F.A., Pungello, E.P., Kainz, K., Burchinal, M., Pan, Y., Wasik, B.H., et al. (2012). Adult outcomes as a function of an early childhood educational program: An Abecedarian Project follow-up. *Developmental Psychology*, 48(4), 1033-1043.

²⁹ Abuya, B. A., Mutisya, M., & Ngware, M. (2015). Association between mothers' education and grade six children numeracy and literacy in Kenya. *Education* 3-13, 43(6), 653-665.

³⁰ Wilder, S. (2014). Effects of parental involvement on academic achievement: a meta-synthesis. *Educational Review*, 66(3), 377-397.

³¹ Attendance Works, 2019. *Using Chronic Absence Data to Improve Conditions for Learning*.





RECOMMENDATIONS



4

In order to guide policy and improvement efforts, some recommendations have been prepared based on the findings of the report. In order to bring improvement in the system, a collaborative effort is needed by all stakeholders at the provincial, district and school levels.

4.1.

SCHOOL EDUCATION DEPARTMENT (SED)

Policy directions needed to support teachers:

- Teachers of all subjects should be encouraged to improve their academic and professional credentials by continuing their formal education in addition to pursuing other targeted programs and short courses.
- Teachers should be required to engage in a mandatory reading of supplementary books and other reading materials in order to improve their subject knowledge.
- Senior and relatively experienced teachers should be encouraged to engage in training programs in order to keep their teaching skills updated with the modern trends.
- In order to meet the training needs of the teachers and support them in their pursuit of academic improvement, QAED can start short courses and other targeted programs through district QAEDs.
- CPD programs can be further enhanced in scope and targeted areas, in order to meet the capacity building needs of the teachers at primary and elementary levels.
- The serious lack of subject-specialist teachers needs to be addressed with appointment of new teachers.
- The practice of multi-grade teaching should be eliminated by a revision in student-teacher ratio (STR). New teachers need to be appointed to meet shortage of teachers.
- Lesson planning is a very effective technique and should be made compulsory for all teachers. With the support of QAED, PCTB and PEC, lesson plans can be provided in a digital format via the school information system (SIS) to ensure availability and consistent utilisation.
- Further in-depth diagnostic studies are required to study the weak areas identified in this report, so that improvements can be made by providing teachers with the required training.

Policy directions needed to develop a collaborative supportive school environment:

- School councils can be used more effectively. Adult literacy programs are needed with support from the Non-Formal Basic Education Department (NFBE) in order to improve the members understanding of their role in councils.
- Keeping in view that most of the students studying in schools belong to poor agricultural households, steps need to be taken to align formal school vacations with the harvesting season, in order to reduce student's study loss due to absenteeism.
- Program are needed to raise awareness and develop necessary attitudes in parents so that they are better able to follow up on their child's studies.

4.2.

Quaid-e-Azam Academy for Educational Development (QAED)

- Head teachers should be provided leadership trainings with a focus on managerial and interpersonal skills for effective engagement with the parents, council members, and the wider community.
- Special programs need to be designed in order to keep the senior and more experienced teachers updated with the modern teaching practices.
- Detailed lesson plans should be developed based on the SNC. The plans should follow one standard template and be shared with all the schools in both print and digital formats. The usage of lesson plan should also be included in the school-based CPD programme (i.e., Innovative Teacher Support Package (ITSP)).
- There is a need for more practical and real-time feedback-based training programs. Teachers should be trained in actual teaching situations, so that the learning from training translates into actual change in their teaching behavior.
- QAED should develop training programs keeping in view the gender-based differences in teachers' performance in different subjects as highlighted in this report.
- Targeted subject-specific trainings should be given to teachers in each district. LSA findings can be used to provide teachers with topic-specific trainings in core subjects of Science, Mathematics, English and Urdu, keeping in view the identified difficult topics.

4.3.

Punjab Curriculum & Textbook Board (PCTB)

- PCTB may share data on weak SLOs with book developers for addition of simple and understandable content in books with sufficient number of examples.
- Textbooks should be provided 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 for developing improvement strategies.

4.4.

Program Monitoring and Implementation Unit (PMIU)

- The real-time school monitoring data should be regularly shared with teachers and head teachers in order to improve their practices.
- AEO must ensure specified number of inspections per month and must visit classrooms as part of the inspection.
- AEO must develop an updated inspection guide based on the real-time school monitoring data and use it in interactions with the teachers.
- Missing infrastructure facilities, study-aids, and other resources should be identified in every school and the required support needs to be provided.

4.5.

District Education Authorities (DEA)

- AEOs must ensure specified number of inspections per month and should also visit classrooms as part of the inspection. AEOs should play their role in training of teachers at their markaz centres.
- School councils should be made more effective, and planning for effective involvement of parents through school councils also needs to be done.
- AEO must guide teachers about including different positive practices in their teaching. Teachers should be encouraged to use lesson plans, study guides, and other study-aids in their teaching.
- Monitoring needs to be done to ensure teachers' timely and regular participation in CPD trainings and use of lesson plans.
- AEOs should continue to provide effective mentoring of teachers regarding implementation of SNC.
- AEO must keep an updated inspection guide based on the real-time school monitoring data and use it in interactions with the teachers.
- AEOs should aid teachers in learning the use of digital tools in order to develop papers from PEC Item Bank and conduct SBA 2021.

4.6.

SCHOOLS

- The scope of co-curricular activities should be widened to include different kinds of activities in order to enable holistic development of students.
- Schools should promote positive norms and behaviours among students through collaborative learning, group activities, sharing of lunch boxes and fund raising activities.
- Head teachers should maintain regular two-way communication with the parents of students. Usage of different social media apps, e.g., WhatsApp groups, can also be considered.
- Head teachers should involve school councils to reach parents of students and develop linkages and feedback mechanisms 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.
- Head teachers should actively guide teachers in their lesson planning and lecture delivery.
- Head teacher should develop a detailed list of all the missing infrastructure, study-aids and other resources in the school. The list should be shared with the AEOs and MEA on their visits, as well as in the school council meetings.
- Teachers should try their best to maintain regular communication with parents, especially with the parents of struggling students.

4.7.

PARENTS

- Parents must regularly check up on the performance and behavior of the students with both the teachers as well as the head teacher.
- Parents should also get involved in the daily homework and other academic activities of the child.
- Effort should be made to fix a minimum number of daily study hours of the child at home as it has been linked with improvement in student performance.
- Students should be encouraged to read material other than the course books.



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