



CERP
EVIDENCE MATTERS

National Institute of Excellence in Teacher Education (NIETE)

First Phase of Evaluation
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Acronyms and Abbreviations

AAEO	Assistant Area Education Officer
AEO	Assistant Education Officer
ASER	Annual Status of Education Report
CERP	Centre for Economic Research in Pakistan
CPD	Continuous Professional Development
DEO	District Education Officer
FCE	Federal College of Education
FDE	Federal Directorate of Education
FLN	Foundational Literacy and Numeracy
ICT	Islamabad Capital Territory
MoFE&PT	Ministry of Federal Education and Professional Training
NIETE	National Institute of Excellence in Teacher Education
PSDP	Public Sector Development Programme
RQ	Research Question
SNC	Single National Curriculum

Executive Summary

Pakistan continues to face significant challenges in improving the quality of education, with teacher capacity and professional development emerging as critical bottlenecks to student learning. In response, the Ministry of Federal Education and Professional Training (MoFE&PT) launched the National Institute of Excellence in Teacher Education (NIETE) program in April 2024, in partnership with Taleemabad, an EdTech company. This two-year intervention (April 2024- April 2026) is rolled out across 341 Federal Directorate of Education (FDE) primary schools in Islamabad Capital Territory (ICT). Its central aim is to strengthen teacher training, introduce scripted pedagogy, and integrate digital tools to improve both teacher practices and student learning outcomes. As part of its mandate to strengthen accountability and promote evidence-based policymaking, the MoFE&PT appointed the Centre for Economic Research in Pakistan (CERP) to evaluate NIETE. This is the first phase of the evaluation, which is aimed at assessing the program's short-term impact on teacher professional development and student learning outcomes, while identifying challenges and opportunities for improvement; however, implications for decision making and our recommendations will be presented after the final evaluation (phase 2) is conducted. Using a quasi-experimental design, the study covered 68 schools: 36 treatment schools in Islamabad and 32 matched control schools in Rawalpindi. The study employed a mixed-methods approach; quantitative data included ASER student assessments (Grades 2–4) and teacher surveys on pedagogical practices and engagement with NIETE. Qualitative data were collected through classroom video observations and stakeholder interviews to provide contextual depth. Together, these data streams provide a comprehensive and evidence-based assessment of NIETE's implementation and outcomes.

Key findings

1. **Student learning outcomes:** Quantitative results show that students in Islamabad (treatment) schools recorded higher average scores than those in Rawalpindi (control) across the grade 2, 3 and 4. In the ASER tests, students in Islamabad scored 1.532 points higher than those in Rawalpindi on the ASER English test, 0.836 points higher on the ASER Math test, and 0.752 points higher on the ASER Urdu test. Students of Grade 4 generally scored higher on the ASER test, which assessed basic literacy and numeracy. Urban schools achieved higher scores than rural schools across all subjects. Female students scored higher in English and Urdu, while male students showed a slight advantage in Mathematics. Moreover, teacher gender had an effect on student learning outcomes with female teachers producing better results. Teacher qualifications, particularly at the master's level, were also positively associated with higher student scores at

Grade 4 with English and Mathematics and negatively associated with Urdu. On the other hand, the effect of teaching experience was different for different subjects and grade levels, which warrants further discussion and exploration.

2. **Teacher Engagement:** Teacher survey data revealed the most frequently used feature was the scripted lesson plans, with 84% users finding them significantly to very significantly useful followed by 63% users finding digital teacher training videos useful. Teachers were appreciative of the structure of the lessons, as well as the role of the intervention in helping them adopt innovative teaching methods that aided student understanding and engagement. However, some teachers found the content difficult to implement in their classroom context, or simply did not have enough time to be able to do so. Similarly, qualitative interviews also revealed a mix of experiences with the NIETE App and its resources; with the majority of teachers being comfortable with using the scripted lesson plans in their classrooms while a few desired more flexibility and space for personal creativity in lessons. Furthermore, the continuous professional videos (CPD) on the NIETE App lacked any professional credentials on completion which led to lack of incentive and motivation for teachers.
3. **Coaching:** Qualitative data highlighted that while teachers and principals valued the in-person coaching component of NIETE, some resistance emerged due to coaches being younger and less experienced.
4. **Barriers to Implementation:** Internet connectivity was highlighted as the primary barrier to implementation by all of the major stakeholders interviewed. Qualitative data also underscores digital accessibility challenges especially among older teachers and those in the rural areas along with several technical issues with the NIETE app.

Recommendations for program improvement will be developed following the second phase of the evaluation, which will offer a clearer understanding of the intervention's long-term implementation, effectiveness, and sustainability.

1. Introduction

1.1 Background

Learning poverty, as defined by the World Bank and UNESCO, refers to the share of children who are either out of school or unable to read and comprehend an age-appropriate text by age 10 (The World Bank Group, 2019). In Pakistan, learning poverty remains alarmingly high, with an estimated 75% of 10-year-olds having difficulty reading and understanding a simple age-appropriate text (UKFIET conference, 2023). Pakistan’s learning poverty rate significantly exceeds the South Asian average of 58% and the global average for lower-middle-income countries of 53% (Geven, 2019). Despite growing enrollment, foundational learning outcomes remain critically low: only 55% of fifth-grade students can read a basic story, and just 51% can solve a two-digit math problem (ASER, 2021).

To address this urgent crisis, MoFE&PT launched the NIETE program in April 2024, in partnership with an EdTech company named Taleemabad. This two year intervention (April 2024-April 2026) is rolled out across all 341 FDE schools in ICT. NIETE is implemented under a Public Sector Development Program (PSDP) funding model.¹ The core challenge NIETE seeks to address is the enhancement of teacher competencies, which is pivotal to improving student learning outcomes at scale in a context where educational disparities and resource limitations continue to hinder progress.

1.2 Overview of NIETE

NIETE is a national initiative developed in response to the country’s high learning poverty and low early-grade learning outcomes to improve the quality of teaching and learning in Pakistan’s public education system, with a primary focus on Foundational Literacy and Numeracy (FLN).

Aims

The overarching aim of NIETE is to strengthen teacher competencies, improve classroom instruction, and create a supportive ecosystem to ensure that students achieve basic learning outcomes by the end of primary school. The program leverages a technology-driven approach engaging teachers, school leaders, parents, and policymakers to drive sustained, measurable improvements in early-grade education.(More information on NIETE can be found in [Appendix A](#)).

¹ The PSDP model supports projects that contribute to national development goals through phased, performance- based allocations from the federal budget. Projects under PSDP have strict timelines, deliverables, and must show measurable short-term progress to justify continued funding.

1.2.1 Core Components of NIETE

1. **Scripted Lesson Plans:** Curriculum-aligned plans based on the Single National Curriculum (SNC) and federal textbooks, offering structured, daily guidance for teachers across subjects to support consistent delivery of FLN skills.
2. **Digital Teacher Training:** Pakistan’s first mobile-based teacher training platform (NIETE App), accredited by a top university that offers flexible, bite-sized, and internationally benchmarked professional development for teachers and school leaders.
3. **In-person Coaching:** Trained coaches that guide teachers and improve their use of the NIETE resources and address any queries and concerns they have. Coaches also monitor and observe classrooms and have one on one in person feedback sessions with teachers.
4. **Assessment Tools (Exam Generator):** A digital bank of over 10,000 expert-crafted questions to generate tests instantly, organized by subject, difficulty level, and higher/lower order thinking, to assess student learning outcomes.
5. **Exam Checker:** A grading tool that evaluates multiple question formats in English and Urdu languages with built-in marking schemes, ensuring faster and more accurate assessment of students' foundational competencies.
6. **School Leadership Dashboards:** Real-time monitoring tools for school heads to track lesson plan completion, teacher attendance, and student performance.
7. **Monitoring for Education Bureaucracy:** Dashboards for education officials (AAEOs, AEOs, DEOs) to track school performance, identify underperforming areas, and ensure implementation fidelity at scale.
8. **Parent and Student Engagement Tools:** Home-based learning content, gamified assessments, and classroom updates delivered via WhatsApp and SMS to support foundational learning beyond school and increase parental involvement.

9. **Mission Control Platform:** A central command system to support coaching teams, track implementation across schools, and generate real-time data insights to inform program adjustments and policy decisions.

By integrating these components, NIETE aims to establish a sustainable, institutionalized model for teacher education in Pakistan focused on ensuring that children acquire foundational English and Urdu literacy, as well as numeracy skills early in their academic journey.

1.3 CERP Evaluation Objective and Research Questions

As part of the MoFE&PT ongoing efforts to enhance the effectiveness of the NIETE program, the Ministry collaborated with CERP to conduct an independent evaluation of the program. The primary objective of this evaluation is to generate evidence on NIETE's impact on both student learning outcomes and teacher professional development, while also identifying implementation challenges and opportunities for improvement.

CERP's evaluation adopts a mixed-methods approach, combining quantitative research with qualitative data from key stakeholders. This approach enables a comprehensive understanding of how NIETE operates in practical settings, the extent to which its components are being implemented effectively, and the measurable changes it brings about in classrooms and student performance.

The evaluation is guided by the following core research questions:

RQ1: What is the impact of the NIETE program on student learning outcomes, particularly in foundational literacy and numeracy?

RQ2: To what extent has NIETE contributed to the professional development of teachers in terms of pedagogical skills, content delivery, and classroom management?

RQ3: How effectively are NIETE's key components being implemented on the ground?

RQ4: What are the primary enablers and barriers to successful adoption of NIETE by teachers, school leaders, and district officials?

RQ5: How can NIETE be improved or scaled in a sustainable manner to strengthen its long-term impact on the education system?

Through this evaluation, CERP aims to support MoFE&PT in evidence-based decision-making and ensure that future iterations of NIETE are even more responsive to the needs of Pakistan's students, teachers, and schools. However, CERP is only evaluating the NIETE App (CPD Videos, lesson plans, timetable) and NIETE coaching's impact on teachers' professional development and student learning outcomes of the NIETE program. This report is the evaluation of the first phase of the NIETE intervention and the second phase (final evaluation) will be presented after the second round of data collection and analysis in June 2026.

1.4 NIETE Stakeholders

The NIETE project involved close collaboration among several key stakeholders responsible for its design, implementation, and evaluation.

1. The Ministry of Federal Education and Professional Training (MoFE&PT) served as the lead implementing agency, providing strategic direction, oversight, and alignment of NIETE with national education and teacher training priorities.
2. The Federal Directorate of Education (FDE) played an essential operational role by facilitating implementation across public schools in Islamabad, coordinating with principals and teachers, and ensuring smooth program delivery. FDE also provided continuous feedback to improve the intervention through its academic teams and school-level monitoring.
3. The Taleemabad team acted as the service provider, responsible for developing and delivering the digital and pedagogical components of NIETE. This included the creation of CPD videos, scripted lesson plans, and app-based tools for teachers. In addition to digital delivery, Taleemabad also conducted in-person coaching sessions, offering classroom-level guidance and support to ensure effective implementation of the intervention.
4. The Centre for Economic Research in Pakistan (CERP) served as the independent evaluation partner, conducting both quantitative and qualitative assessments to measure NIETE's impact on teacher practices and student learning outcomes.

5. Finally, school principals and teachers were the direct participants and beneficiaries of the program. Principals supported implementation and motivated teachers, while teachers applied NIETE's training, lesson plans, and digital tools in their classrooms.

2. Methodology

2.1 Evaluation Design

The evaluation of the NIETE program adopted a quasi-experimental design for a robust assessment of the impact of the NIETE intervention on student learning outcomes and teachers' professional development. A key challenge faced in evaluating the intervention was that NIETE had already been implemented across all of FDE's primary schools in Islamabad before the evaluation began, resulting in the absence of baseline data for comparison.

To address this challenge, the evaluation employed a statistical matching approach, comparing treatment (Islamabad) schools to statistically similar control (Rawalpindi) schools that did not receive the intervention (A list of treatment and control schools is in [Appendix B](#)). By controlling for pre-existing differences between groups, this method allowed for a more accurate estimation of the intervention's effect, ensuring that any observed differences in student test scores can be attributed primarily to the NIETE program rather than to pre-treatment variations. Details on the matching process are given in [Appendix C](#)).

2.2 Sample

2.2.2 Sampling Methodology

In order to select a sample of students and teachers for the student tests and teacher surveys respectively, we followed a simple randomization process. The primary advantage of this approach of simple random sampling is that it allows us to make inferences about the general population by using a sample of teachers and students. Moreover, the 36 schools in Islamabad were selected evenly across the six sectors to ensure that the sample reflected performance from all regions. The FDE divides schools into 6 sectors based on their location: Urban I, Urban II, Tarnol, Nilore, Sihala, and Bara Kahu.

2.2.3 Sample Size

The total sample size for students and teachers was determined using the statistical power analysis (details can be found in [Appendix C](#)). The study design initially comprised 3,060 student observations per round, divided between treatment and control groups, resulting in a total of approximately 6,120 student observations across both data collection phases. The sample was deliberately structured to ensure equal representation across grades 2, 3, and 4, with 15 students per grade randomly selected from each school

(45 students per school). The study design comprised 8 primary-level teachers to be surveyed from each school (544 in total). Originally, in Islamabad schools, we decided to collect data from 36 schools with 288 teachers and 1620 students per round. Subsequently, for Rawalpindi schools, we decided to take 32 schools with 256 teachers and 1440 students per round.

2.2.3.1 Variations in the Sample

It is important to note that the number of participating teachers and students varied due to factors such as absenteeism on data collection days, school transfers, and lower-than-expected enrollment in certain schools. The lower classroom strength may also be attributed to the timing of data collection, which occurred close to the summer vacations. Consequently, there was a discrepancy between the planned and the actual sample sizes obtained. The actual sample size from which we collected data from is presented in the table below:

Table 2.3.1: Variation in Sample (Treatment vs Control)

Type	No. of Schools	No. of Teachers	No. of Students
Control (Rawalpindi)	32	108	977
Treatment (Islamabad)	36	280	1614

On the day of data collection, data was collected from 2,591 students in total (the variation in this number is explained above); 977 students from 32 schools in Rawalpindi and 1,614 students from 36 schools in Islamabad. In case a school has multiple sections of one grade level, we randomly selected an equal number of students from each section to whom we administered the tests. On the other hand, a total of 308 teachers were surveyed; 280 teachers from Islamabad and 108 from Rawalpindi. We chose teachers who taught the same students we administered the test to, specifically those teaching English, Urdu, and Mathematics in grades 2, 3, and 4. This ensured alignment between student and teacher data, as teacher characteristics were later analyzed as explanatory variables in the regression models assessing student learning outcomes. In some schools, this could have included up to nine teachers (three subjects across three grades). When there were nine eligible teachers, we used a simple random selection process. Each teacher was assigned a random number, and eight were selected based on the system-generated list. However, in many schools, teachers taught multiple subjects or grades. For example, one teacher might have taught all subjects in a grade or the same subject across several grades. In such cases, the total

number of teachers in our sample was naturally smaller, and random selection was not required.

2.3 Data Collection Instruments

The data collected for this evaluation included both qualitative and quantitative data. The objective was to be able to gain a detailed understanding of the NIETE intervention and its impact on all major stakeholders.

2.3.1 Quantitative Instruments

2.3.1.1 Student Tests

At the student level, we collected data on student performance using the ASER (Annual Status of Education Report) tests from students of grade 2, 3 and 4. ASER instruments are widely recognized and validated for their application in low and middle-income countries such as Pakistan, India and Senegal.² ASER has questions for each subject that test students' basic recognition, reading, comprehension, and listening skills. Additionally, students of grade 4 were administered an additional test shared with us by Taleemabad (the complete ASER test along with Taleemabad's test can be found in [Appendix D](#)). We administered the ASER test and Taleemabad's test only to students who have been a part of the intervention.

2.3.1.2 Teacher Surveys

The teacher survey targeted those teachers who had participated in the NIETE program and integrated it into their classroom practice. Developed using internationally validated instruments and stakeholder insights, the survey explored teachers' experiences with program adoption, skills development and the perceived benefits professionally and for students (the administered survey can be found in [Appendix E](#)).

2.3.2 Qualitative Instruments

2.3.2.1 Key Informant Interviews (KIIs)

A total of 16 in-depth interviews were conducted with key stakeholders involved in the design, implementation, and use of the NIETE program. These interviews were designed to capture a wide range of perspectives on the effectiveness, relevance, and implementation of NIETE, as well as to identify potential areas for improvement (Interview guides can be found in [Appendix F](#)).

² <https://asERPakistan.org/ASER-A-SOUTH-SOUTH-INITIATIVE>

The breakdown of interviews is as follows:

- 5 interviews with public school teachers who had direct experience using the NIETE App, lesson plans, training modules, and assessment tools.
- 7 interviews with school principals, offering insights into school-level implementation, teacher support, and leadership engagement.
- 1 interview with a representative from the Ministry of Federal Education and Professional Training, who was involved in the project’s coordination and oversight.
- 3 interviews with representatives from Taleemabad (2 coaches and 1 member of the senior management), the service provider responsible for content development, technology infrastructure, and field implementation.

All interviews were semi-structured, allowing for both consistency in key topics and flexibility to explore stakeholder-specific insights. The design of these interviews was based on our earlier discussions with stakeholders and similar evaluations conducted globally about the efficacy of teacher training programs.

The data generated from these interviews were used to inform thematic analysis and enrich the interpretation of quantitative findings with grounded, context-specific perspectives. Further details on the analysis method can be found in [section 2.4.2.1](#).

Table 2.3.2: Participants Profile

Participant	Role at Organisation/School	Years of Experience	Gender
Teacher 1 (P1)	Class Teacher	30 (near retirement)	Female
Teacher 2 (P2)	Head Teacher/NIETE focal person	23	Female
Teacher 3 (P3)	Class Teacher	20	Female
Teacher 4 (P4)	Class Teacher/former NIETE focal person	3.5	Male
Teacher 5 (P5)	Class Teacher	20	Female

Principal 1 (P6)	Principal	-	Male
Principal 2 (P7)	Principal	-	Male
Principal 3 (P8)	Principal	-	Female
Principal 4 (P9)	Principal	-	Female
Principal 5 (P10)	Principal	-	Female
Principal 6 (P11)	Principal	-	Female
Principal 7 P(12)	Principal	-	Female
MoFE&PT's Representative (P13)	Head of Academic Excellence and Quality Control	-	Female
Taleemabad's Representative A (P14)	Coach	-	Male
Taleemabad's Representative B (P15)	Coach	-	Female
Taleemabad's Representative 3 (P16)	Senior member of management	-	Male

2.3.2.2 Classroom Observations of Teachers Implementing the NIETE Lesson Plans

To complement the survey and interview data, classroom observations were conducted to capture how teachers implemented NIETE's scripted lesson plans in real classroom settings. These observations provided valuable insights into the fidelity of implementation, teacher–student interactions, and the practical application of NIETE's pedagogical strategies. Four complete classroom lessons were randomly selected and video recorded across the six sectors of Islamabad to ensure representativeness. The following lessons were evaluated:

- **Urdu - Grade 4:** Compound Words (lecture duration: 18m 18s), Sector: Urban II
- **Math - Grade 4:** Place Value and Subtraction (lecture duration: 32m 40s), Sector: Nilore
- **English Phonics - Grade 3:** Long and short vowel sounds of a, e, i, o, u (lecture duration: 24m 49s), Sector: Tarnol
- **English Phonics - Grade 3:** Short and Long Vowel Sound of 'o' (lecture duration: 33m 49s), Sector: Urban I

Details on how these video recordings were analysed can be found in [section 2.4.2.2](#).

2.4 Data Analysis Methodology

2.4.1 Quantitative Data Analysis Methodology

2.4.1.1 Teacher Surveys

Teacher survey data was analyzed to provide quantitative insights into teachers' engagement with the NIETE intervention and its perceived effects on classroom practices and student learning outcomes. The survey captured multiple facets of teacher experience, including usage of the NIETE App and its features (such as scripted lesson plans, CPD videos, and assessment tools), frequency and quality of interactions with NIETE coaches, teachers' perceptions of the program's usefulness and feasibility and impact on student learning outcomes.

The analysis primarily relied on descriptive statistics to summarize trends and patterns across treatment and control schools. These trends helped identify variations in teacher engagement, training uptake, and self-reported changes in pedagogical practices. Further details on the above, on school and teacher characteristics is presented in [Section 3.1](#), which provides contextual background for interpreting the survey findings.

2.4.1.2 Student Tests

We used descriptive analysis to examine the student performance on the ASER tests. Student performance was reported using three metrics for each subject: (a) total test score, (b) Taleemabad's test scores (only grade 4), and (c) ASER test categorisation (highest difficulty question answered correctly). Below we explain how each metric was constructed and used in the analysis.

Total ASER test scores for grade 2, 3 and 4 students

The maximum attainable scores differ by subject: English = 29 points, Mathematics = 18 points, and Urdu = 16 points. For every subject we report standard descriptive statistics (mean, standard deviation). The descriptive results of ASER tests can be found in [section 3.2](#).

Total Taleemabad's test scores for grade 4 students

In addition to the grade 4 ASER test, grade 4 students attempted Taleemabad's test for all three subjects. The maximum attainable Taleemabad's test differs by subject: English = 12 points, Mathematics = 16

points, and Urdu = 5 points. For every subject, we report standard descriptive statistics (mean, standard deviation). The descriptive results of Taleemabad’s tests can be found in [section 3.2](#).

ASER’s grade benchmarks (highest-level-correct)

The ASER test is structured such that each subsequent question increases in rigour (difficulty level) relative to the previous item. We assigned every student to the category corresponding to the most difficult question they answered correctly; that is, a student’s *category* equals the level of the highest difficulty question they solved. This mirrors the official ASER categorisation approach (tables 2.4.1 - 2.4.3) and allows us to summarise not only aggregate scores but the highest competency level demonstrated by each student. The descriptive results of student tests using ASER grade benchmarks can be found in [section 3.2](#).

The ASER categorisations for each subject is shown below:

English

Table 2.4.1: English ASER Student Benchmarks

Benchmark	ASER student category level
The child is at “Beginner/Nothing level” if the child does not correctly recognise at least 4 out of 5 capital letters.	Beginner level
The child is at ‘Capital Letters level’ if the child correctly recognises at least 4 out of 5 capital letters correctly but is unable to recognise at least 4 out of 5 small letters.	Capital letters level
The child is at ‘Small Letters level’ if the child correctly recognizes at least 4 out of 5 letters correctly but is unable to recognise at least 4 out of 5 words correctly.	Small Letters level
The child is at ‘Word level’ if the child correctly recognizes at least 4 out of 5 words correctly but is unable to tell their meaning in his/her mother tongue and is unable to read 2 out of 4 sentences.	Word level
If a child is able to tell the meanings of the words identified in their mother tongue then mark them as ‘yes’ or word meanings level but is unable to read 2 out of 4 sentences.	Word meanings level (yes)
The child is at ‘Sentences level’ if the child correctly reads 1 set of the sentences, at least 2 out of 4 sentences must be correct.	Sentences level
If a child is able to tell the meaning of the sentences identified in their mother tongue then mark them as ‘yes’ or sentence meanings level	Sentence meanings level (yes)

Mathematics

Table 2.4.2: Mathematics ASER Student Benchmarks

Benchmark	ASER student category level
The child is at 'Beginner level' if the child cannot recognize at least 4 out of 5 single digit numbers.	Beginner level
The child is at 'Number Recognition(1- 9) level' if the child can correctly recognize at least 4 out of 5 single digit numbers but is unable to recognise double digit numbers.	Number Recognition(1-9) level
The child is at 'Number Recognition(10- 99) level' if the child can correctly recognize at least 4 out of 5 double digit numbers but is unable to recognise triple digit numbers.	Number Recognition(10-99) level
The child is at 'Number Recognition(100- 999) level' if the child can correctly recognize at least 4 out of 5 triple digit numbers but is unable to solve 2 subtraction problems.	Number Recognition(100-999) level
The child is at "subtraction level" if the child is able to solve any two 2 or 3 digit subtraction problems but is unable to solve 1 division problem.	Subtraction level
The child at 'Division level' if the child is able to solve 1 division problem.	Division level

Urdu

Table 2.4.3: Urdu ASER student benchmarks

Benchmark	ASER student category level
The child is at "Beginner/Nothing level" if the child does not correctly read at least 4 out of 5 letters.	Beginner level
The child is at 'Letters level' if the child correctly reads at least 4 out of 5 letters correctly but is unable to read at least 4 out of 5 words.	Letters level
The child is at 'Words Level' if the child correctly reads at least 4 out of 5 words correctly but is unable to read 4 sentences.	Words level
The child is at "Sentences level" if they read all of the given (4) sentences correctly but are unable to fluently read the story.	Sentences level
The child is at 'Comprehension level' if the child can fluently read the story passage and answer both questions correctly.	Comprehension level

Moreover, for grade 4 students, Taleemabad’s test had a few additional benchmarks for student categories which was shared with us by Taleemabad’s team (the complete methodology can be found in [Appendix G](#)). Below are the additional categories for each subject:

English

Table 2.4.4: English Taleemabad Student Benchmarks

Benchmark	Taleemabad student category level
If the child can not read 6 out of 8 sentences administer the ASER test.	ASER test
The child is at “Grade 4 - Sentences level” if he/she can read two sets of sentences out of which 6 out of 8 must be correct but answers less than 3 questions correctly in the story.	Grade 4 - Sentences level
The child is at “Grade 4 - Story level” if he/she can read the story and answer 3 out of 4 questions correctly.	Grade 4 - Story level

Mathematics

Table 2.4.5: Mathematics Taleemabad Student Benchmarks

Benchmark	Taleemabad student category level
If the child can’t correctly solve a 4 digit and a 5 digit subtraction problem administer the ASER test.	ASER test
The child is at “Grade 4- Subtraction level” if the child can solve a 4 digit and a 5 digit subtraction problem but not the Taleemabad division.	Grade 4 - Subtraction level
The child is at ‘Grade 4 - Division level” if the child can solve the Taleemabad division but can not recognise 4 out 5 five-digit numbers.	Grade 4 - Division level
The child is at “5 Digit Number Recognition level” if the child can recognise at least 4 out of 5 five digit numbers but is unable to recognise the decimal numbers.	5 Digit Number Recognition level
The child is at “Decimal Number Recognition level” if the child can recognise at least 4 out of 5 five decimal numbers	Decimal Number Recognition level

Urdu

Table 2.4.6: Urdu Taleemabad Student Benchmarks

Benchmark	Taleemabad student category level
If the child is unable to read the story and answer questions fluently administer the ASER test.	ASER test
The child is at “Grade 4 - Grammar level” if the child can answer both the grammar questions correctly but is unable to make two sentences.	Grade 4 - Grammar level
The child is at “Grade 4 - Sentences level” if the child is able to make two sentences.	Grade 4 - Sentences level

2.4.1.2.1 Regression Analysis

Along with analysing the teacher survey results, it is important to investigate whether these changes materialised into improvements in student test scores in the treatment schools in Islamabad. Therefore, in addition to descriptive data collected from teachers, it is essential to conduct statistical analysis to explore if and how student test performance improved. Regression analysis results can be found in [section 3.2.2](#).

The data collected is hierarchical in nature, with three distinct levels of data: student, teacher, and school. At the student level, variables such as gender and grade were included. At the teacher level, factors like gender, qualifications, and years of experience were considered. Finally, at the school level, controls included whether the school was located in an urban or rural area, the student–teacher ratio, and the availability of basic infrastructure such as drinking water. The standard errors were clustered to control for fixed effects and the naturally occurring dependence among children studying in the same school or classroom and prevent correlation of errors within the same group that could otherwise lead to biased estimates. Details on the treatment and control school matching process can be found in [Appendix C](#).

For the regressions, multi-level regression modelling was used for which we examined continuous dependent ASER test score variables. These were taken for each of the three subjects (English, Mathematics, and Urdu) and tested for grades 2, 3, and 4. For grade 4 only, we studied Taleemabad’s test scores in addition to ASER test scores. All regressions account for the student, teacher, and school-level controls and our main independent variable of interest was the treatment group, comparing students in Islamabad schools (treatment group) to those in Rawalpindi schools (control group). A random effects model was used to adjust for differences in teacher characteristics across schools. In addition, ordinal regressions were estimated to account for the ordered nature of ASER score categories and corroborate

the findings of continuous variable regressions. This additional layer of analysis strengthens the reliability of our conclusions, with full results of ordinal regression reported in [Appendix I](#).

2.4.2 Qualitative Data Analysis Methodology

2.4.2.1 Thematic Analysis of Key Informant Interviews (KIIs)

The qualitative data collected through KIIs were analysed using a thematic analysis approach. This process involved the systematic coding of interview transcripts to identify recurring patterns, key challenges, and stakeholder perspectives related to the design, implementation, and impact of the NIETE program.

The coding process was both inductive and deductive: initial themes were informed by the evaluation's research questions, while additional sub-themes emerged organically from the data. Codes were refined and grouped under broader thematic categories to ensure consistency and clarity.

Key themes that emerged from the data include:

- Challenges faced by stakeholders in the Implementation
- Perceived impact on teachers
- Perceived impact on student learning outcomes
- Support and accountability structures
- Systemic gaps and recommendations

These themes are discussed in detail in the findings [section 4.1](#), drawing on quotes and insights from the interviews to highlight the perspectives across stakeholders.

2.4.2.2 Descriptive Analysis of Classroom Observations of Teachers Implementing the NIETE Lesson Plans

The qualitative analysis of classroom observations was descriptive in nature and aimed to compare actual teaching practices against the NIETE scripted lesson plans to identify areas of alignment and divergence. Each of the four recorded lessons was evaluated across six key dimensions: instructional structure, student

engagement, visual and kinesthetic support, differentiation and inclusion, classroom management, and alignment with NIETE's pedagogical framework.

For English and Mathematics lessons, the analysis also assessed adherence to NIETE's specific pedagogical models; the Synthetic Phonics model for English and the CRA (Concrete–Representational–Abstract) model for Mathematics. A multi-dimensional engagement framework was used to evaluate verbal interactivity, visual scaffolding, grouping dynamics, and student response patterns.

Although a Grade 2 English grammar lesson was initially selected for analysis, the corresponding lesson plan could not be located on the NIETE App. Upon follow-up with the NIETE team, it was confirmed that grammar lesson plans were temporarily unavailable during the summer update period. Consequently, a Grade 3 English phonics lesson was substituted for analysis.

The complete findings from video recording classroom observations can be found in [section 4.4](#).

3. Quantitative Data Findings

3.1 Findings from Teacher Survey

3.1.1 School Characteristics

The sample includes 32 control schools from Rawalpindi and 36 treatment schools chosen from the NIETE schools in Islamabad. The table 3.1.1 outlines salient characteristics of sample schools in Islamabad and Rawalpindi.

Table 3.1.1: School Characteristics in Treatment vs Control

Indicator	Islamabad	Rawalpindi
Number of schools	36	32
Urban schools (%)	58	34
Student-teacher ratio	25.1	26.7
Schools with electricity (%)	100	100
Schools with drinking water (%)	100	97
Number of students in the sample	1614	977
Female students (%)	60	49
Male students (%)	40	51

School size, in terms of the number of students in the school, also varies between both the control and treatment schools in the sample. In Rawalpindi, primary-level student enrollment ranges from 23 to 372 students, while in Islamabad, it is higher, ranging from 108 to 692 students. Despite this variation, the average student-teacher ratios are relatively close, with approximately 27 students per teacher in Rawalpindi and 25 in Islamabad.

In terms of facilities, nearly all schools in both samples provide essential services. Every school in Islamabad and Rawalpindi has electricity, while access to drinking water is universal in Islamabad and available in 97% of schools in Rawalpindi.

3.1.2 Teacher Demographics

- Age Group

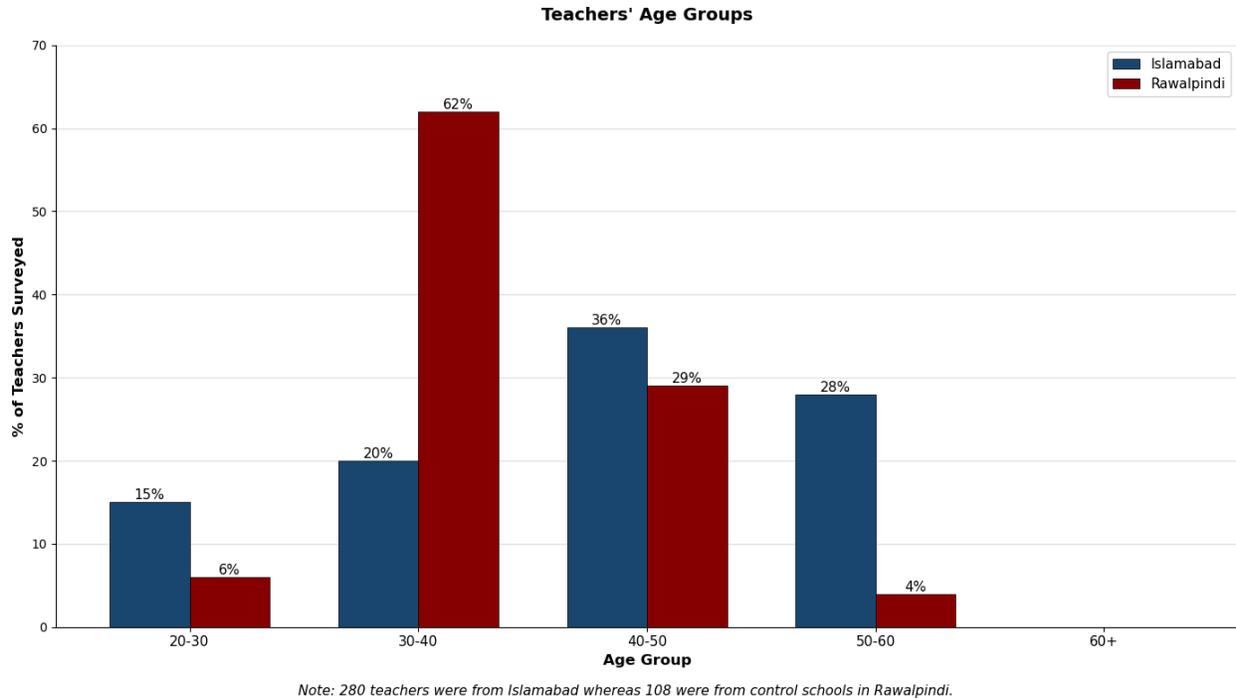


Figure 3.1.1: Teachers' Age Groups

A total of 388 teachers were surveyed as part of the initial round. 280 of these were from Islamabad, whereas 108 were from control schools in Rawalpindi. In Islamabad, a larger proportion of teachers were in the older age brackets, with 36% aged 40–50 and 28% aged 50–60. In contrast, in Rawalpindi, the majority of teachers (62%) were concentrated in the 30–40 age group.

- **Years of Experience**

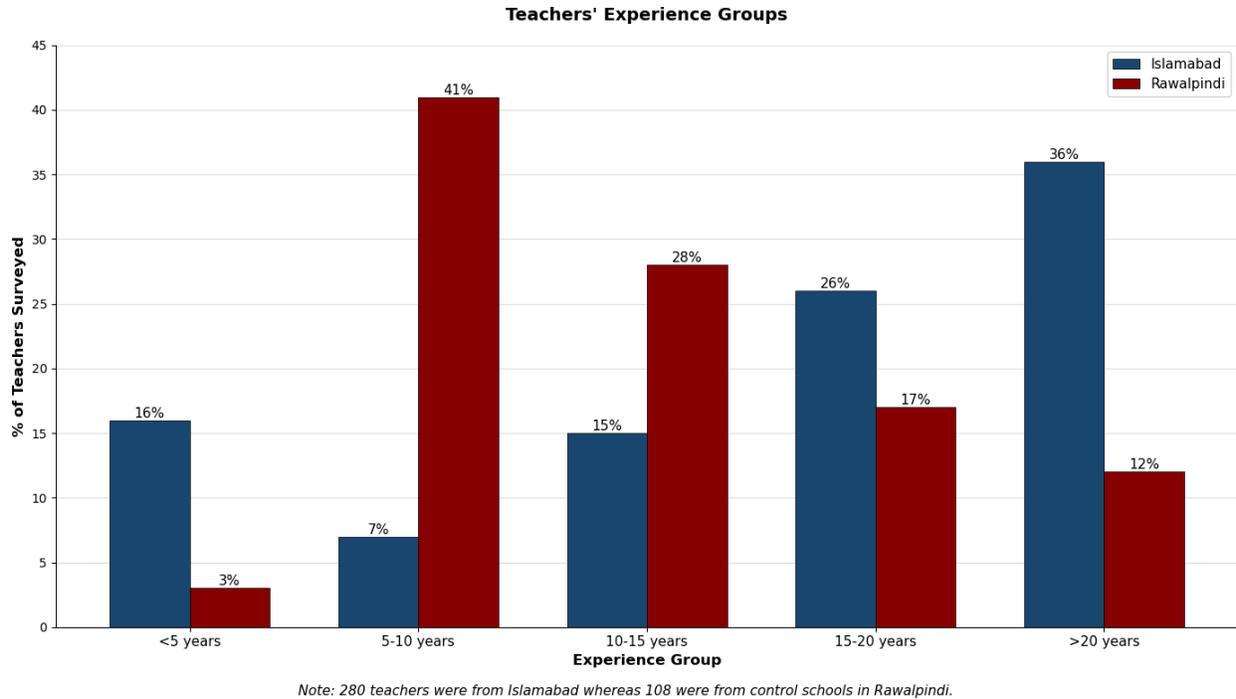


Figure 3.1.2: Teachers' Years of Experience

In Islamabad, teachers exhibited a more diverse distribution of experience, with the largest proportion (36%) having more than 20 years of teaching experience, followed by 26% with 15-20 years of experience. In contrast, the majority of teachers in Rawalpindi were in the earlier stages of their careers, with 41% having between 5-10 years of experience and 28% having 10-15 years of experience. Notably, only 12% of Rawalpindi teachers had more than 20 years of experience compared to 36% in Islamabad.

- **Qualification**

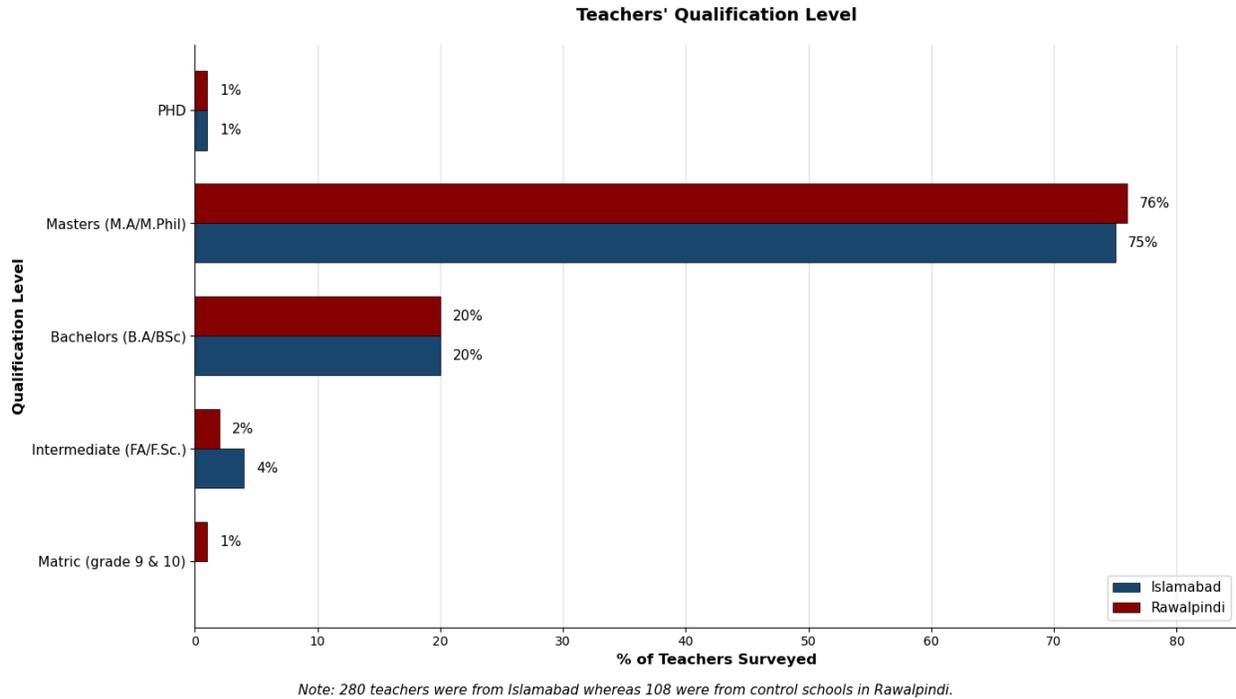


Figure 3.1.3: Teachers' Qualification Level

The qualifications of teachers, on the other hand, were similar across both the treatment and control groups, and are illustrated in the figure below. 75% of the teachers who were surveyed had a Master's degree (MA/MPhil). The next largest group were those who had Bachelors degrees (almost 20% of the entire sample).

- **Teacher Composition: Grade-level**

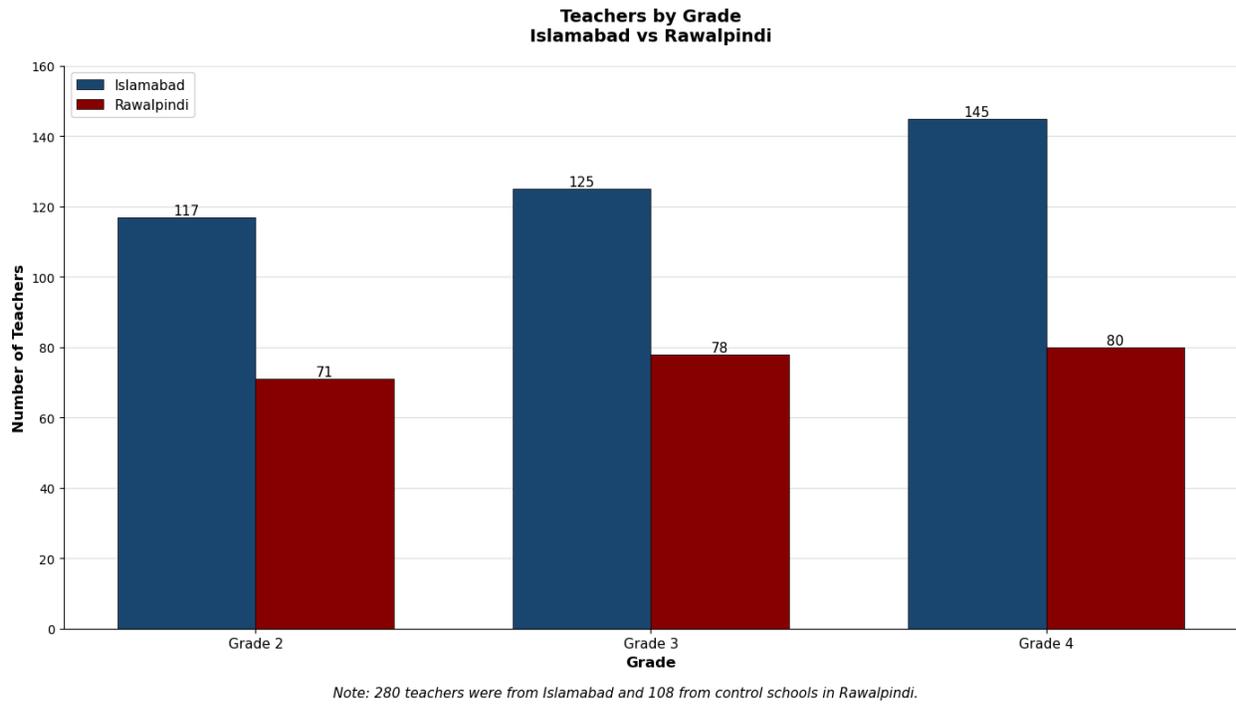


Figure 3.1.5

The distribution of teachers by grade level varied between the treatment and control groups (figure 3.1.5). Islamabad had 117 teachers in grade 2, 125 in grade 3, and 145 in grade 4, while Rawalpindi had 71 teachers in grade 2, 78 in grade 3, and 80 in grade 4. Islamabad schools had nearly double the number of teachers compared to Rawalpindi across all grade levels, with the gap widening in higher grades.

- **Class-size**

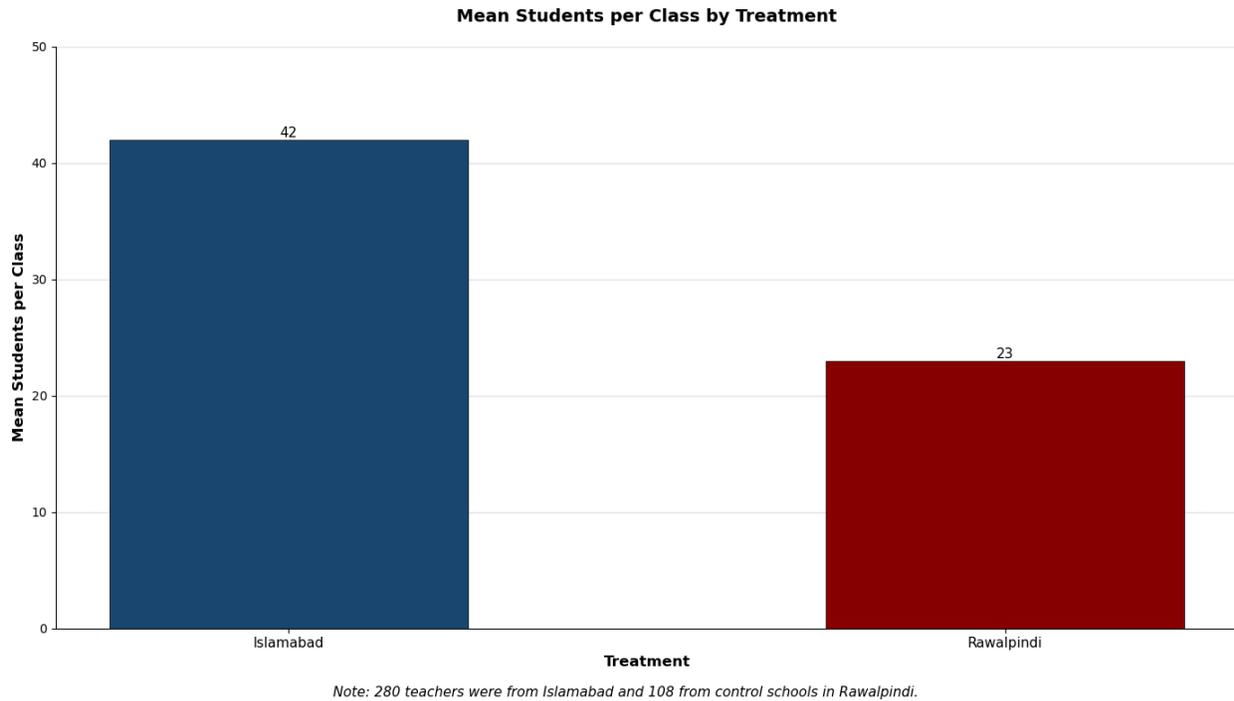


Figure 3.1.4

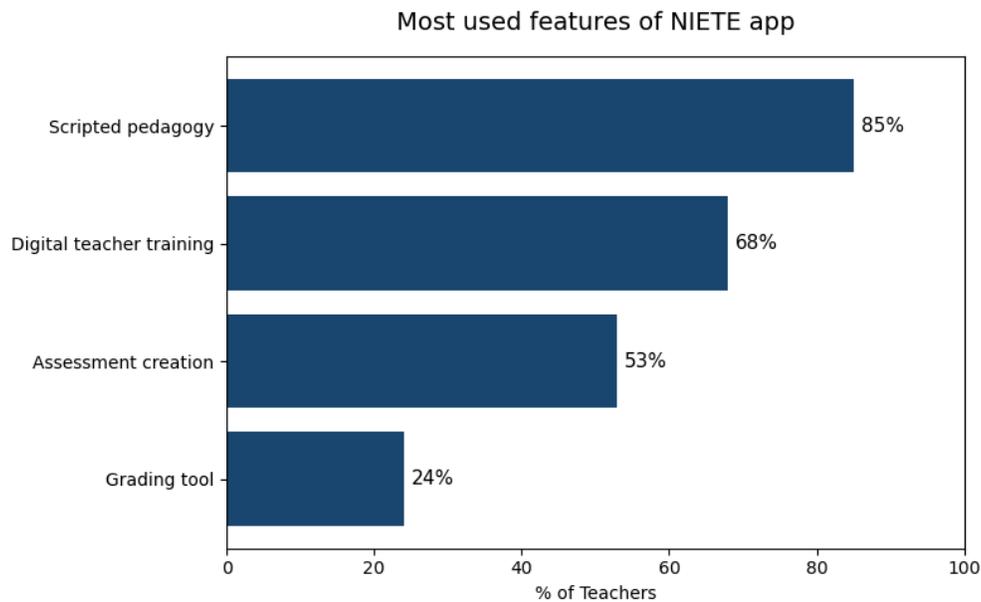
The mean class size differed between the treatment and control groups, and is illustrated in the figure above (figure 3.1.4). Islamabad schools had an average of 42 students per class, while Rawalpindi schools had an average of 23 students per class, indicating that Islamabad classrooms were nearly twice as large as those in Rawalpindi.

3.1.3 Teachers' Engagement with the NIETE App and its Features

Section summary

Most teachers reported active engagement with the NIETE app, with over 80% using it regularly and being strongly encouraged by school leadership to integrate it into their teaching. Scripted lesson plans emerged as the most frequently and positively used feature, followed by teacher training videos and the assessment creation tool. Overall, teachers' usage patterns closely aligned with their perceptions of value, underscoring the app's effectiveness in supporting lesson planning while highlighting the need for further improvement in less-developed functions.

A majority of teachers (66%) reported having used the NIETE app from its introduction in April–May 2024, while another 25% began using it later in the same year. Overall, 84% of surveyed teachers indicated that they “*always*” or “*very frequently*” used the app before their lessons. This level of engagement appears to have been reinforced by school leadership, as 82% of teachers noted that they were “*significantly*” or “*very significantly*” encouraged by principals and administrators to incorporate the app into their practice. This observation aligns with our qualitative findings in [Section 4.3.1](#) on the role of principals in motivating and facilitating teachers in the NIETE intervention’s effective implementation.



Note: Percentage represents proportion of teachers (N=280) who selected each feature among their top 5 used

Figure 3.1.6

In terms of feature usage, scripted lesson plans were by far the most widely utilised, with 85% of teachers reporting regular use. Teacher training videos (68%) and the assessment creation tool (53%) also saw engagement, while the grading tool recorded the lowest usage (16%), in part due to its incomplete development at the time of the survey (May–June 2025).

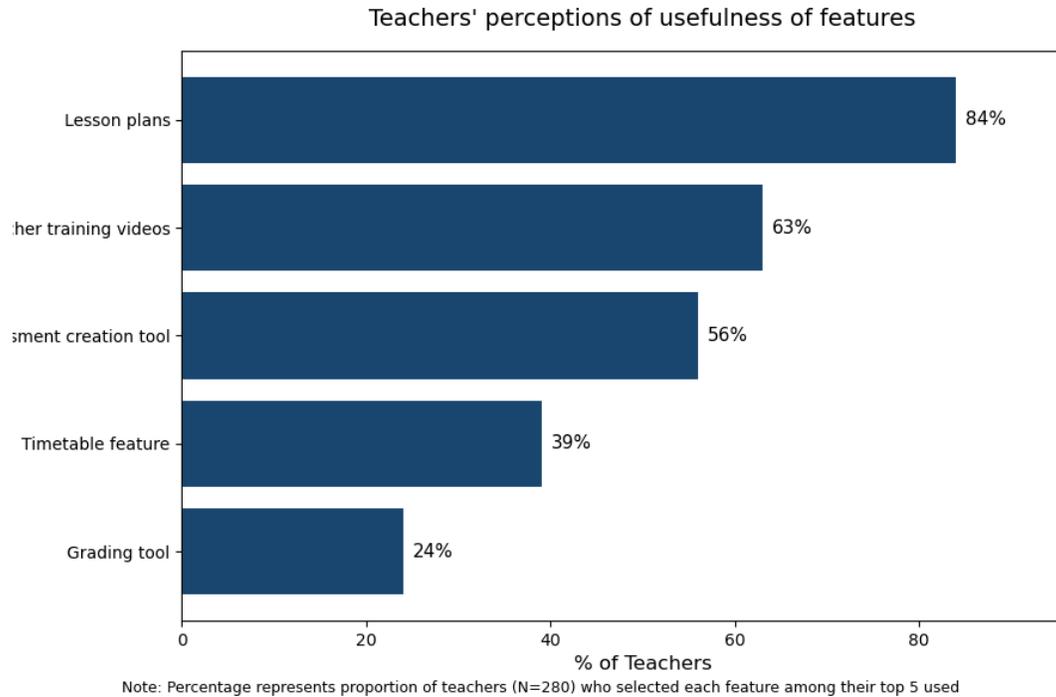


Figure 3.1.7

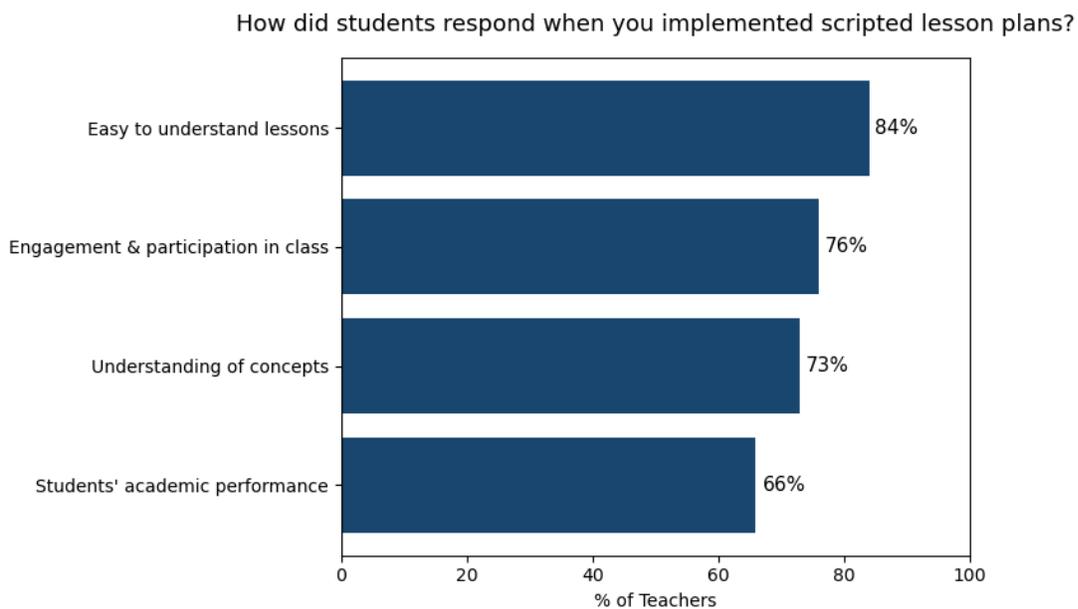
Teachers' perceptions of the usefulness of these features (figure 3.1.7) broadly mirrored these usage patterns, though with some variation. This differs from the figure discussed above which pertained solely to the usage of the NIETE App features, while the figure (3.1.6) discussed here pertains to the usefulness of the features teachers reported using in the paragraph above. Teachers could choose multiple features of the app; lesson plans were again rated highest, with 84% of teachers considering them “*significantly*” or “*very significantly*” useful. Teacher training videos (63%) and the assessment creation tool (56%) followed, while the timetable feature (39%) and the grading tool (24%) were rated considerably lower.

Altogether, these findings indicate that the features most frequently used were generally also those regarded as most useful, particularly the scripted lesson plans. However, the relatively low perceived value of tools such as the timetable and grading functions highlights areas where the app requires further refinement to ensure consistent utility across all of its components.

3.1.3.1 Scripted Lesson Plans

Section summary

The majority of teachers (84%) reported that NIETE’s scripted lesson plans positively impacted their classrooms, improving lesson clarity, student engagement (76%), and conceptual understanding (73%). 66% also noted better overall academic performance among students. Teachers attributed these gains to the structured nature of the plans, practical strategies, and greater efficiency that allowed them to support weaker learners. However, 16% of teachers observed no improvement, citing limited time, inadequate resources, external disruptions, and difficulty understanding or applying the content as key barriers



Note: Percentage of teachers (N=280) who agreed or strongly agreed with positive student responses

Figure 3.1.8

The survey also explored teachers’ perceptions of the impact of NIETE’s scripted lesson plans on their classrooms. Teachers were asked to reflect on how students responded after these lesson plans were implemented and could select multiple options where applicable (figure 3.1.8). Out of 280 teachers, 84% found lesson plans to be useful in improving their classroom, and 16% teachers reported not seeing any improvement after the use of lesson plans. Nearly 84% said that lessons were easy to understand; another 76% observed noticeable improvements in student engagement and participation during lessons. Similarly, 73% indicated that students were able to grasp new concepts and lessons more easily, while 66% reported tangible improvements in students’ overall academic performance.

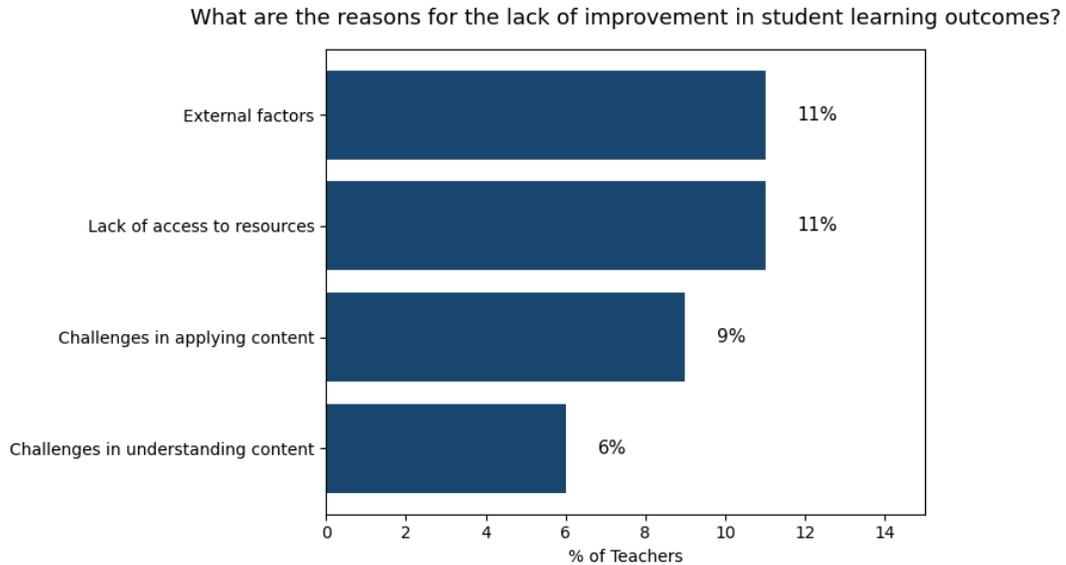


Figure 3.1.9

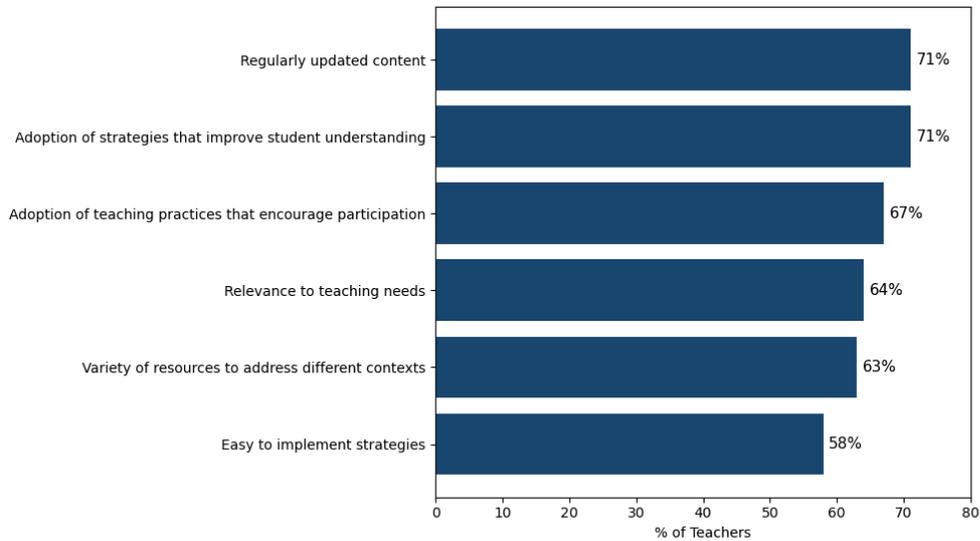
16% of the total teachers who were surveyed felt that the lesson plans did not improve student learning outcomes. They were asked the reason for this and could choose multiple options (Figure 3.1.9). 11% felt that they did not have access to sufficient resources, nor have enough time to implement these strategies in the classroom. A similar proportion (11%) was also hindered by external factors like school closure or other disruptions. 9% faced challenges in applying the NIETE content in their classroom settings, while another 6% found it difficult to understand the course content.

3.1.3.2 Continuous Professional Development (CPD) Videos

Section summary

Most teachers (80%) believed that NIETE's CPD videos improved student learning by providing practical, regularly updated, and relevant teaching strategies that enhanced comprehension and participation. However, around 20% reported no noticeable impact, mainly due to time constraints and limited classroom resources.

Did the teacher training videos on the NIETE App help improve student learning outcomes (test scores) in your class?



Note: Percentage of teachers (N=280) who reported each factor contributing to improvement in student learning outcomes.

Figure 3.1.10

The survey also asked teachers if they believed the CPD videos (including videos on lesson plan preparation/delivery, along with other kinds of teacher training, such as on Bloom’s taxonomy, being one such example) on the NIETE app helped in improving student learning outcomes in their classrooms.

80% of the teachers agreed with the statement that the teacher training videos on the NIETE App help improve student learning outcomes (test scores) in their classroom. Teachers were further asked to identify the exact mechanisms through which they believed the learning outcomes improved and they could select multiple options where applicable (figure 3.1.10) Approximately 71% of teachers reported that the regular updating of content on the NIETE app enhanced its usefulness, while an equal proportion (71%) indicated that the instructional videos assisted them in adopting strategies that improved student comprehension. A slightly lower proportion of teachers (67%), stated that the videos enabled them to adopt teaching practices that fostered greater student participation in class. Similarly, 64% emphasised the relevance of the material to their specific teaching needs. In addition, 63% noted that the videos provided a variety of resources adaptable to different classroom contexts, while 58% underscored that the strategies presented were practical and easy to implement.

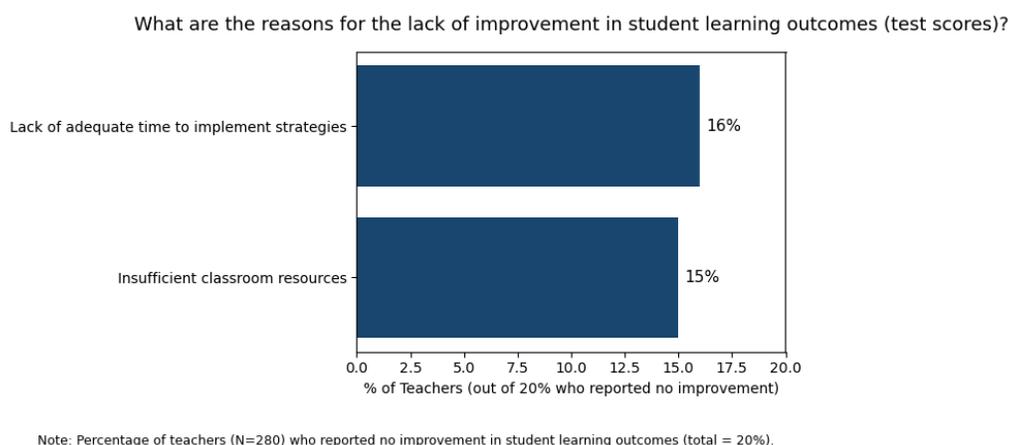


Figure 3.1.11

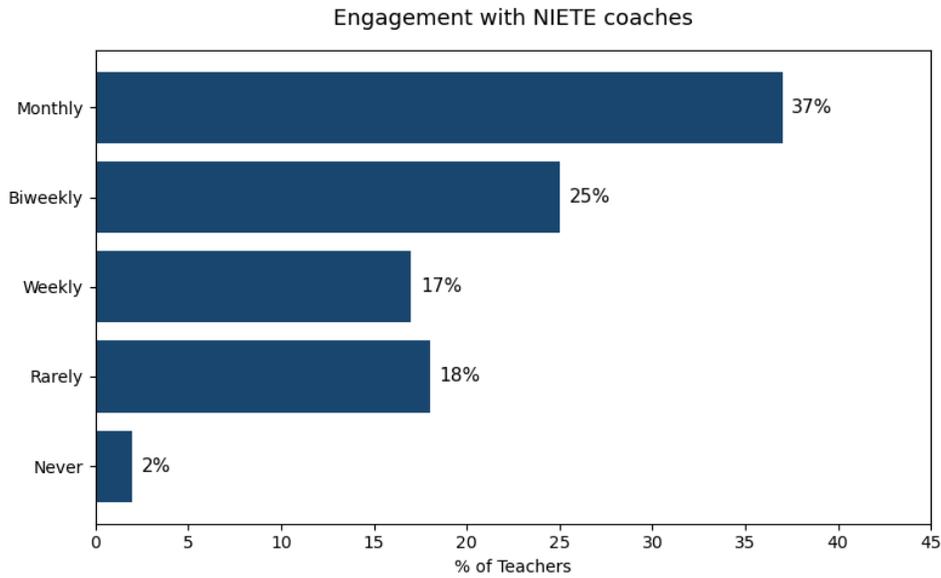
Teachers who said there was no improvement were further asked to identify the reasons they believed the learning outcomes did not improve and they could select multiple options where applicable (figure 3.1.11). Approximately 20% of teachers who reported using the NIETE app indicated that the CPD videos did not lead to any noticeable improvement in student outcomes. Among this group, the most commonly cited reasons were the lack of adequate time to implement the suggested strategies (16%) and insufficient resources within the classroom to effectively utilise these approaches (15%).

3.1.4 Engagement with NIETE Coaches

Section summary

The survey revealed that most teachers had regular interaction with NIETE coaches, with 37% reporting monthly visits and 25% biweekly ones. About three-fourths (74%) found coaches well-prepared for classroom observations. Teachers valued the feedback and accessibility of coaches, with 76% highlighting constructive and timely support and 68% noting help with navigating the app. However, fewer teachers (less than 50%) reported receiving targeted guidance on curriculum alignment or specific classroom challenges, indicating a need for more specialised instructional support.

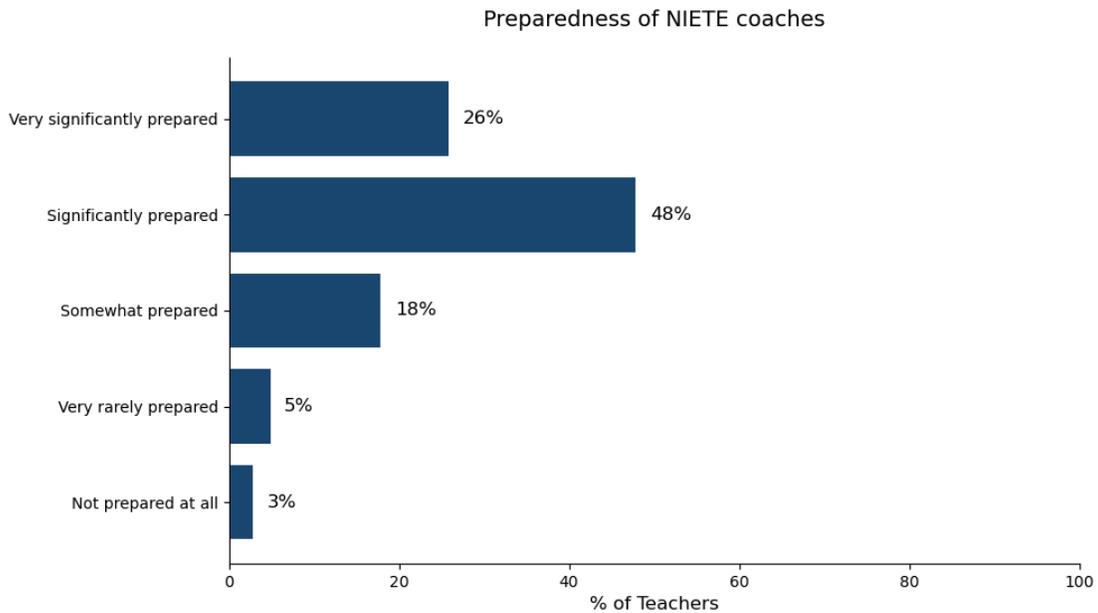
The survey also examined teacher interactions with NIETE coaches and the perceived utility of feedback sessions.



Note: Percentage represents proportion of teachers (N=280) who reported each coaching visit frequency.

Figure 3.1.12

Regarding the frequency of coaching sessions, 37% indicated that visits occurred monthly, 25% of teachers reported that coaches visited their schools on a biweekly basis, while nearly 20% of teachers reported that coaches visited their schools weekly, a similar percentage reported that coaches visited them rarely, and 2% reported having never had any coaching sessions.

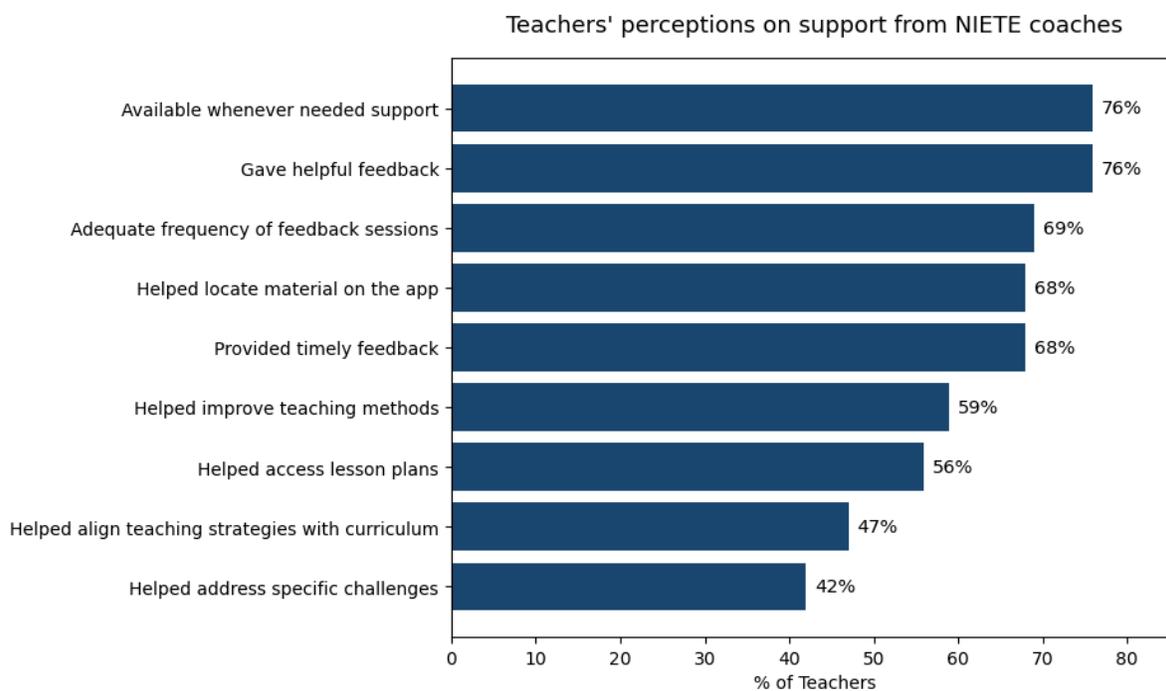


Note: Percentage represents proportion of teachers (N=280)

Figure 3.1.13

With respect to coach preparedness, a large majority of respondents (74%) agreed that coaches arrived “*significantly*” and “*very significantly*” prepared for classroom observations. Some teachers reported that the coaches were somewhat prepared (18%), and a small proportion reported that coaches were either “*not*” (3%) or “*very rarely*” prepared (5%) for their visits.

The survey also assessed the specific areas in which teachers received support from NIETE coaches and how useful this assistance was for classroom implementation.



Note: Percentage represents proportion of teachers (N=280).

Figure 3.1.14

The most widely acknowledged forms of support were the provision of constructive feedback after classroom observations (76%) and the consistent availability of coaches whenever teachers required assistance (76%). Significant proportions of teachers also emphasised the value of timely feedback (68%), guidance in locating material on the NIETE app (68%), and the overall adequacy of feedback session frequency (69%). In addition, over half of the teachers reported that coaches helped them improve their teaching methods (59%) and facilitated access to lesson plans (56%). However, fewer teachers indicated

receiving targeted support in aligning teaching strategies with the curriculum (47%) or in addressing specific classroom challenges (42%) (Figure 3.1.14).

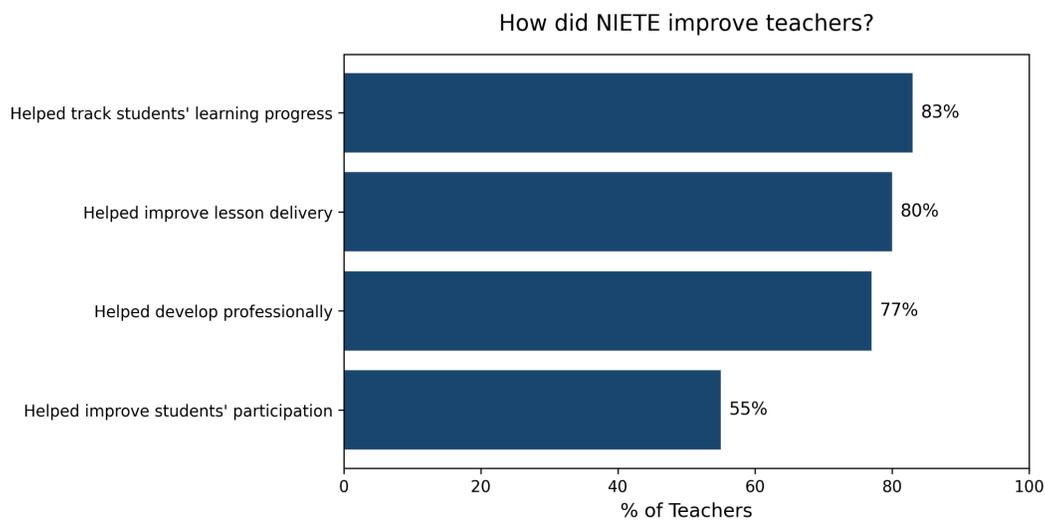
These findings suggest that while the general support provided by coaches was well received, more specialised guidance may be required to address the specific instructional needs of teachers.

3.1.5 Perceived Impact on Teachers due to NIETE

Section summary

Most teachers reported that NIETE improved their teaching practice, with 83% highlighting improved tracking of student progress, 80% noting better lesson delivery, 77% crediting the program for supporting their professional growth, 55% underscoring help in students' participation. However, about 10% saw no improvement in lesson delivery or development, and 8% found the app unhelpful for monitoring students.

Teachers were also asked to reflect on which aspects of their teaching had improved as a result of the NIETE intervention. Figure 3.1.15 below shows commonly reported advantages.



Note: Percentage represents proportion of teachers (N=280) who reported NIETE helped in each area

Figure 3.1.15.

The majority highlighted improvements in their ability to track students' learning progress using app-based features (83%) and in lesson delivery (80%) and in. In addition, 77% of teachers reported that

the program supported their professional development and contributed to their career growth and 55% highlighted helped improve students' participation.

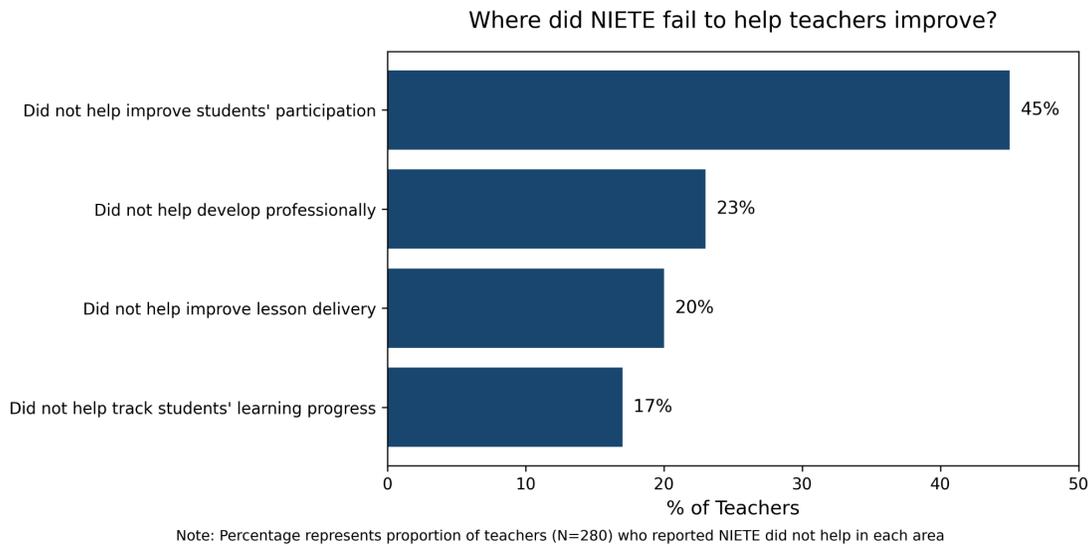


Figure 3.1.16

At the same time, a smaller proportion of teachers reported no such benefits (figure 3.1.16). Around 17% stated that it did not help track students' learning process, 20% did not see improvements in lesson delivery, 23% felt it did not help in professional development, and 45% felt that the app did not improve students' participation.

Overall, these responses indicate that while most teachers found NIETE useful for improving classroom practice and professional growth, a minority did not experience these advantages to the same extent.

3.1.6 Perceived Improvements among Students observed by Teachers after NIETE Implementation

Section summary

Teachers observed significant positive changes in student engagement following the implementation of NIETE lesson plans and CPD videos. The majority reported higher student participation (83%), improved engagement with course content (84%), stronger peer learning (78%), and greater enthusiasm and confidence among students (75–80%). However, the program's effect on routine behaviours like attendance (57%) and homework completion (48%) was relatively limited..

To consolidate the findings presented in the preceding sections on teachers' engagement with NIETE tools and training, the survey included a broader question aimed at capturing overall classroom-level changes. Teachers were asked to reflect on whether they had observed any noticeable differences in their students after implementing scripted lesson plans and completing the continuous professional development (CPD) training videos available on the NIETE App.

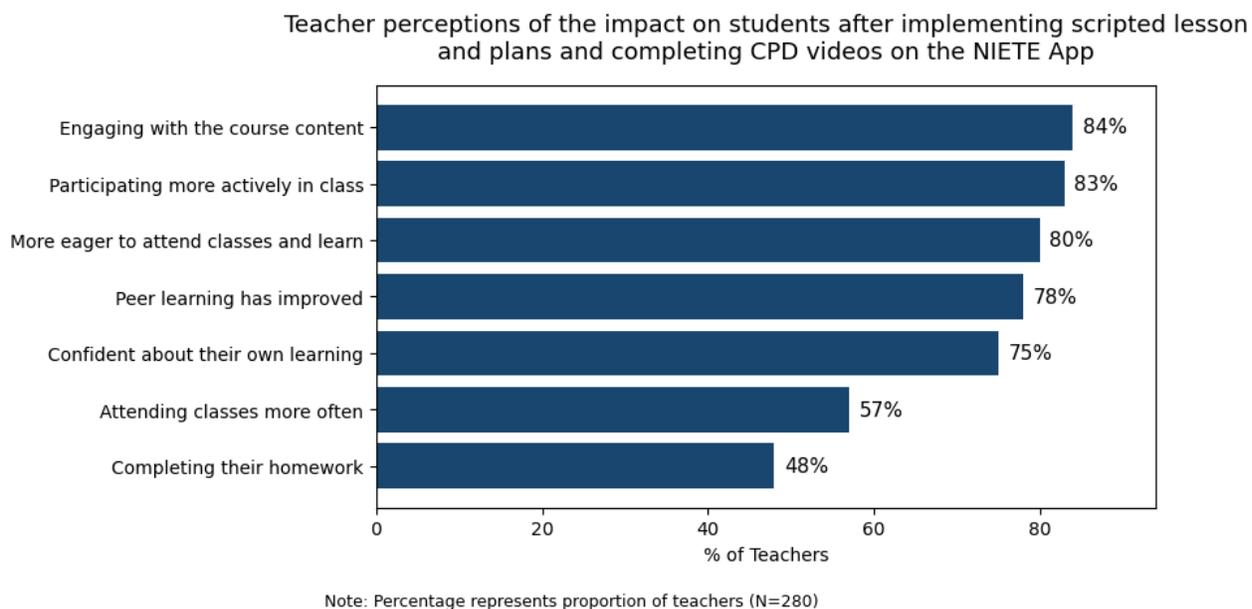


Figure 3.1.16

The survey findings indicate that the implementation of NIETE has been associated with several notable improvements in student engagement and learning behaviours, as reported by teachers. The most frequently cited changes were an increase in students' engagement with course content (84%) and more active participation during class (83%). Teachers also observed positive effects on peer-to-peer learning (78%), students' eagerness to attend classes and learn (80%), and greater confidence among students regarding their own learning abilities (75%). While these findings suggest meaningful improvements in classroom dynamics, the reported effects on student attendance (57%) and homework completion (48%) were comparatively modest (Figure 3.1.16).

Altogether, the results highlight that NIETE's impact has been most pronounced in enhancing student engagement and collaborative learning, whereas its influence on routine academic behaviours, such as homework and attendance, has been less substantial.

3.2 Findings from Student Tests

3.2.1 Descriptive Analysis

This section will discuss the student test results of ASER test and Taleemabad's test (for grade 4 students only) using the overall student scores and then moving towards categorising students in ASER categories and additionally categorising only grade 4 students in Taleemabad's categories (the benchmarks for each of these categories are explained in section [2.4.1.2](#)). Moreover, Taleemabad provided specific thresholds to categorise students by grade level for each subject. Using these benchmarks, we analysed the results and classified students accordingly. The detailed grade-level thresholds shared by Taleemabad can be found in [Appendix G](#).

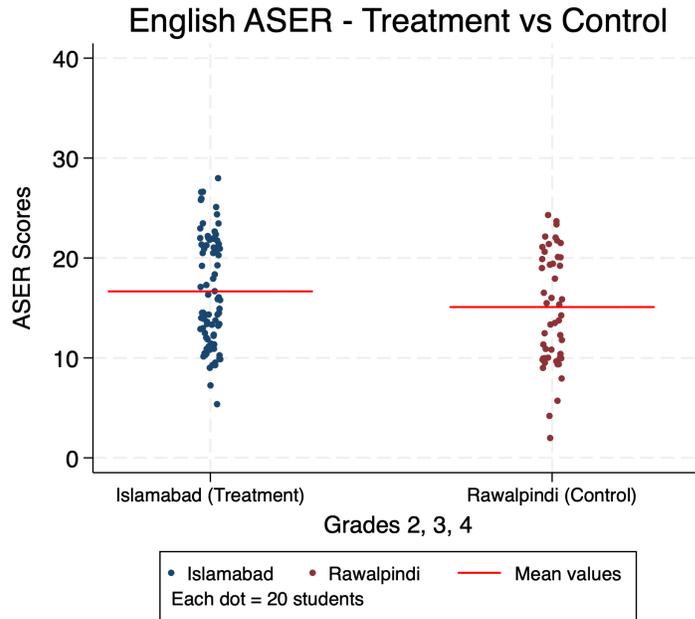
3.2.1.1 English

Summary

The ASER English test had a maximum score of 29 points. For grade 4, the maximum score was 41 points, combining the ASER test (29 points) and the additional Taleemabad test (12 points).

In grade 2, the mean ASER English test score was 12.03 for Islamabad and 10.81 for Rawalpindi. Grade 3 showed improvement with mean scores of 14.98 for Islamabad and 14.20 for Rawalpindi. In grade 4, students achieved higher mean scores, with Islamabad scoring 16.03 and Rawalpindi scoring 15.62 on the ASER English test, while on the Taleemabad English test, students in Islamabad scored 4.42 and students in Rawalpindi scored 4.90. Overall, Islamabad's students consistently performed better than Rawalpindi's students across all grade levels.

In the grade 2 ASER English test, the majority of students were at the 'Small Letters' level, with 56% from Rawalpindi and 62% from Islamabad. The majority of grade 3 students were at 'Small Letters' level (42% Rawalpindi and 38% Islamabad). In the grade 4 ASER English test, Rawalpindi's students were primarily at the 'Small Letters' level (32%), while Islamabad's students progressed to the 'Words' level (38%), showing better overall English literacy performance. In grade 4 Taleemabad's English test, 68% of students from Islamabad and 86% of students from Rawalpindi failed to meet any Taleemabad's category level. Among those who made progress, the majority were at the 'Grade 4 Sentences' level, with 16% from Islamabad and 10% from Rawalpindi. Refer to figures 3.2.1 to 3.2.8.



Figures 3.2.1

The summary statistics for the English test scores in the overall sample are shown below:

Table 3.2.1: English Student Scores Statistics

English Test Scores				
Grade	Grade 2 (ASER test)		Grade 3 (ASER Test)	
	Islamabad	Rawalpindi	Islamabad	Rawalpindi
Maximum	29		29	
Minimum	0		0	
Mean	13.21	12.27	17.41	15.36

Standard Deviation	4.66	4.76	5.46	4.94
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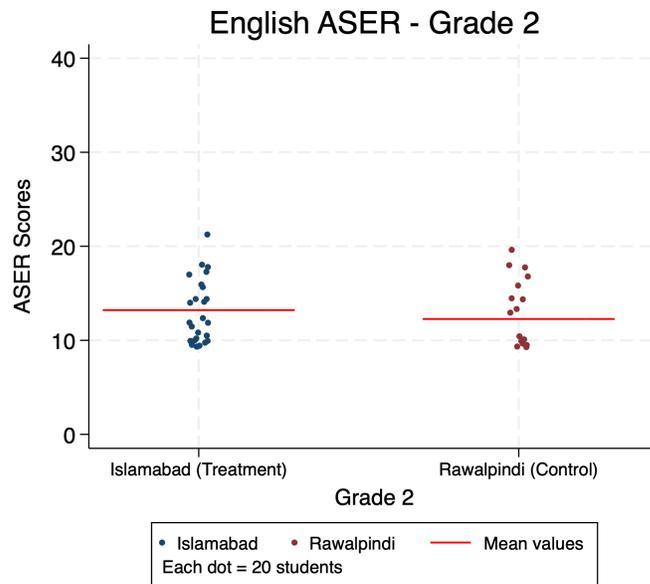
Islamabad and Rawalpindi Schools Grade Level Distribution

Table 3.2.2: English Student Scores - Grade 4 Components

Grade 4 English Test						
Test	ASER		Taleemabad ASER		Total	
	Islamabad	Rawalpindi	Islamabad	Rawalpindi	Islamabad	Rawalpindi
Maximum	29		12		41	
Minimum	0		0		0	
Mean	19.36	17.79	5.53	3.77	24.89	21.55
Standard Deviation	5.05	5.04	3.80	3.30	8.52	7.96

The following subsequent section breaks down the ASER and Taleemabad test performance for each grade in Islamabad and Rawalpindi schools.

→ **Grade 2: English**



Figures 3.2.2

The Grade 2 students in Islamabad achieved a mean (average) score of 13.21 out of 29 in the ASER test. Grade 2 students in Rawalpindi achieved a mean score of 12.27 out of 29 (Figure 3.2.2).

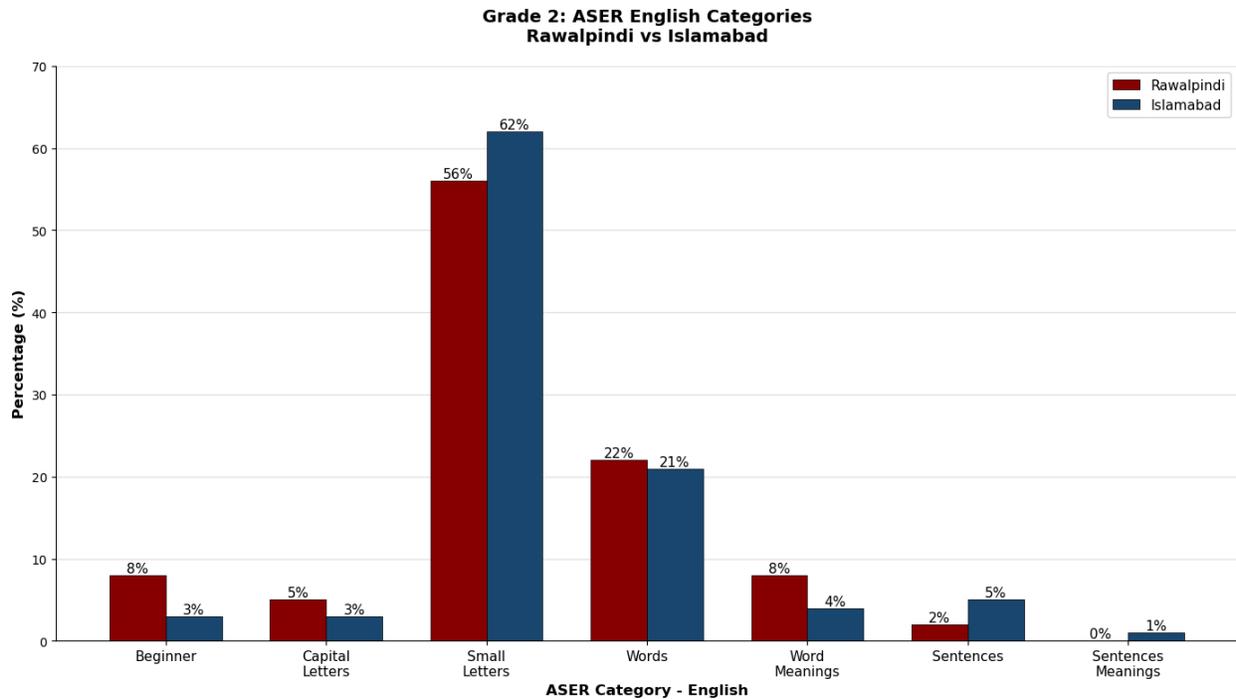
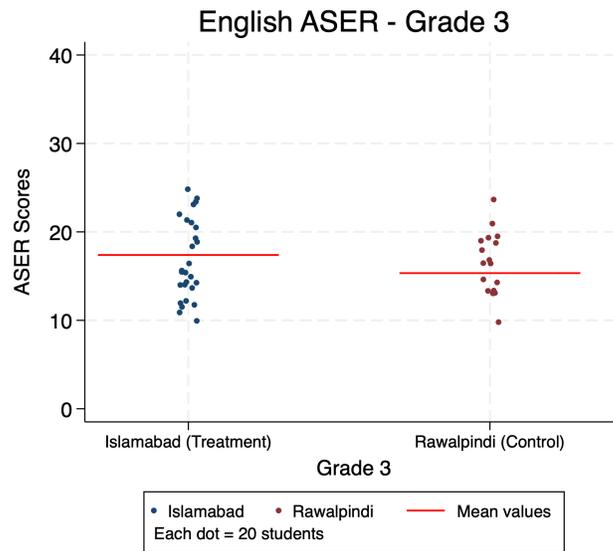


Figure 3.2.3

In Islamabad, on the ASER categories in English for students (explained in figure 3.2.3), 3% were on the ‘beginner level’ (fail to attempt any question), 3% of students were on ‘Capital letters level’ (can read 4 out of 5 capital letters but fail to read small letters), 62% of students were on ‘Small letters level’ (can read 4 out of 5 small letters but fail to read words), 21% of students were on “Words level” (can read 4 out of 5 words but fail to read sentences) with 4% being able to tell the word meanings in their mother tongue, 5% of students were on ‘Sentences level’(can read 2 out of 4 sentences) with only 1% being able to tell the sentences meaning in their mother tongue.

In Rawalpindi, 8% were on the ‘beginner level’, 5% of students were on ‘Capital letters level’, 56% of students were on ‘Small letters level’, 22% of students were on “Words level” with 8% being able to tell the word meanings in their mother tongue, 2% of students were on ‘Sentences level’ with 0% students being able to tell the sentences meaning in their mother tongue (figure 3.2.3).

→ Grade 3: English



Figures 3.2.4

Grade 3 students in Islamabad performed better overall, with an average score of 17.39 out of 29 in the ASER test. Grade 3 students in Rawalpindi obtained an average score of 15.34 out of 29 on the ASER test (Figure 3.2.4).

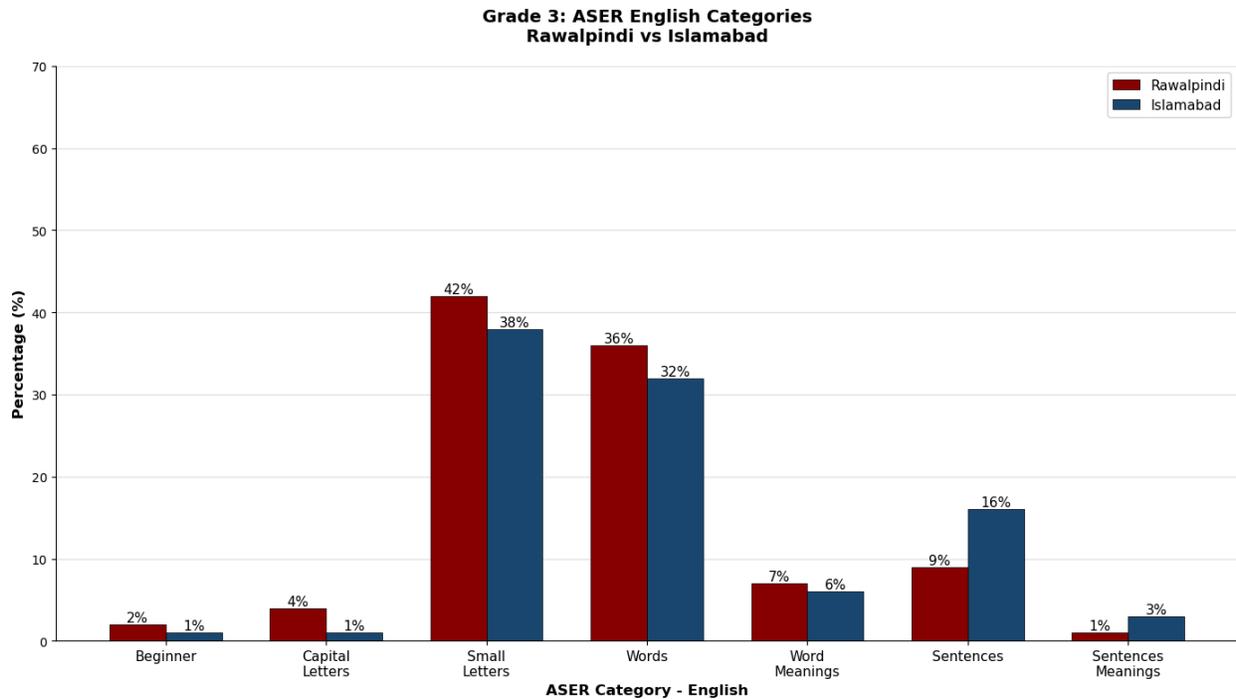
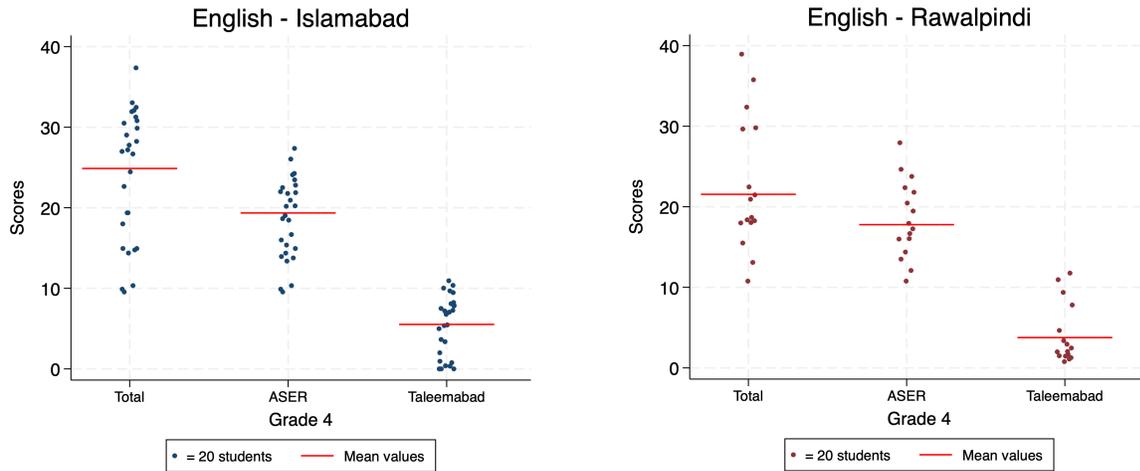


Figure 3.2.5

In Islamabad, on the ASER categories in English for students (explained in figure 3.2.5), 1% were on the ‘beginner level’ (fail to attempt any question), 1% of students were on ‘Capital letters level’ (can read 4 out of 5 capital letters but fail to read small letters), 38% of students were on ‘Small letters level’ (can read 4 out of 5 small letters but fail to read words), 32% of students were on ‘Words level’ (can read 4 out of 5 words but fail to read sentences) with 6% being able to tell the word meanings in their mother tongue, 16% of students were on ‘Sentences level’ (can read 2 out of 4 sentences but not read the comprehension) with only 3% being able to tell the sentences meaning in their mother tongue.

In Rawalpindi, 2% were on the ‘beginner level’, 4% of students were on ‘Capital letters level’, 42% of students were on ‘Small letters level’, 36% of students were on ‘Words level’ with 7% being able to tell the word meanings in their mother tongue, 9% of students were on ‘Sentences level’ with 1% students being able to tell the sentences meaning in their mother tongue (figure 3.2.5).

→ **Grade 4: English**



Figures 3.2.6a, 3.2.6b

The grade 4 students in Islamabad achieved an average score of 19.36 out of 29 in the ASER test, while on the English Taleemabad test, students obtained a mean of 5.52 out of 12. On the other hand, grade 4 students in Rawalpindi recorded an average score of 17.78 out of 29 in the ASER test, while on the Taleemabad test, students obtained a mean of 3.77 out of 12.

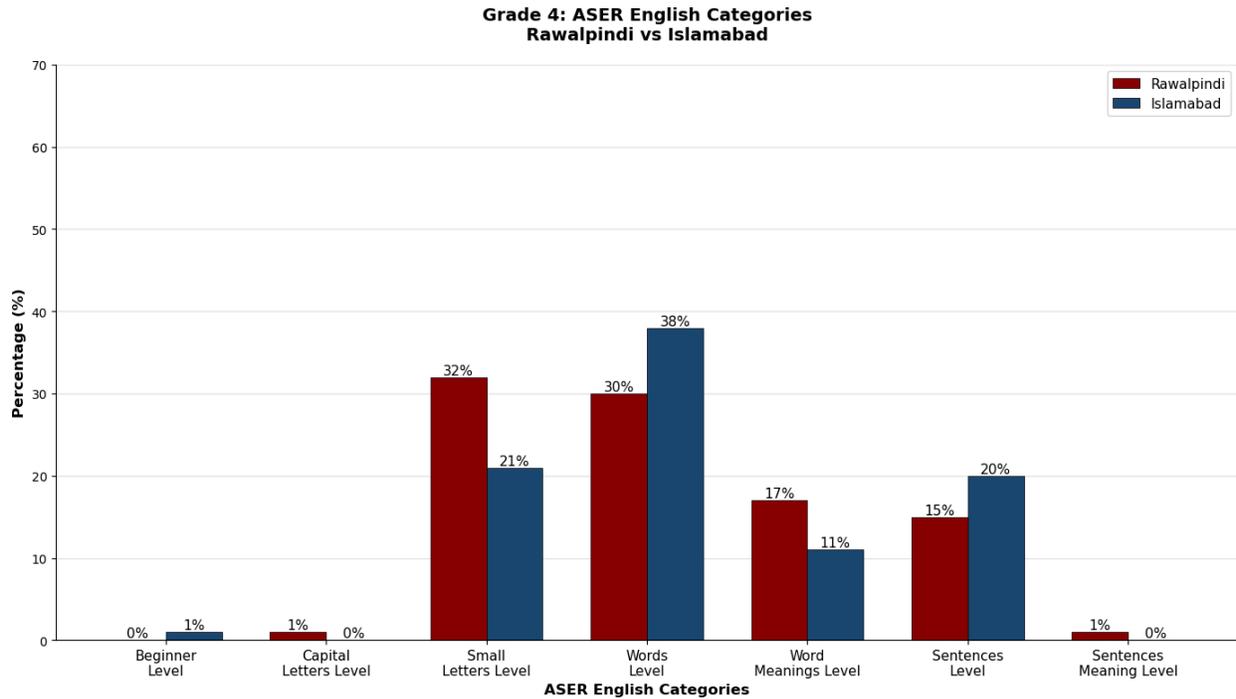


Figure 3.2.7

In Islamabad, on the ASER categories in English for students (explained in figure 3.2.7), 1% were on the ‘beginner level’ (fail to attempt any question), 0% of students were on ‘Capital letters level’ (can read 4 out of 5 capital letters but fail to read small letters), 21% of students were on ‘Small letters level’ (can read 4 out of 5 small letters but fail to read words), 38% of students were on ‘Words level’ (can read 4 out of 5 words but fail to read sentences) with 11% being able to tell the word meanings in their mother tongue, 20% of students were on ‘Sentences level’(can read 2 out of 4 sentences but not read the comprehension) with only 0% being able to tell the sentences meaning in their mother tongue.

In Rawalpindi, 0% were on the ‘beginner level’, 1% of students were on ‘Capital letters level’, 32% of students were on ‘Small letters level’, 30% of students were on ‘Words level’ with 17% being able to tell the word meanings in their mother tongue, 15% of students were on ‘Sentences level’ with 1% students being able to tell the sentences meaning in their mother tongue.

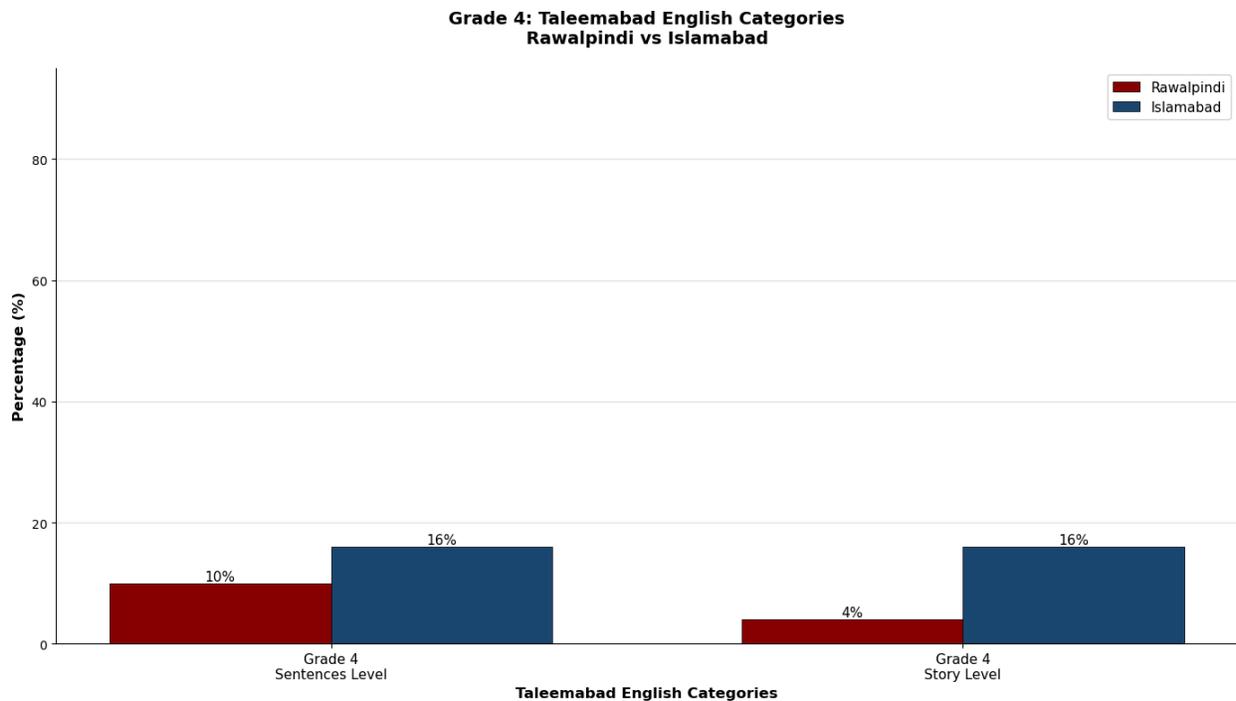


Figure 3.2.8

In Islamabad, 32% of the total English students were able to meet Taleemabad’s English categories, and 68% were unable to meet these categories as they failed to meet the benchmarks. Out of these 32%, 16% of the students are on the ‘Grade 4 Sentences Level’ (the child can read two sets of sentences out of which

6 out of 8 must be correct) and 16% on the 'Grade 4 Story Level' (child can read the story and answer 3 out of 4 questions correctly.)

In Rawalpindi, only 14% of the total English students were in Taleemabad's English test categories, and 86% were unable to meet these categories as they failed to meet the benchmarks. Out of these 14%, 10% were on 'Grade 4 Sentences Level' and 4% on 'Grade 4 Story Level'.

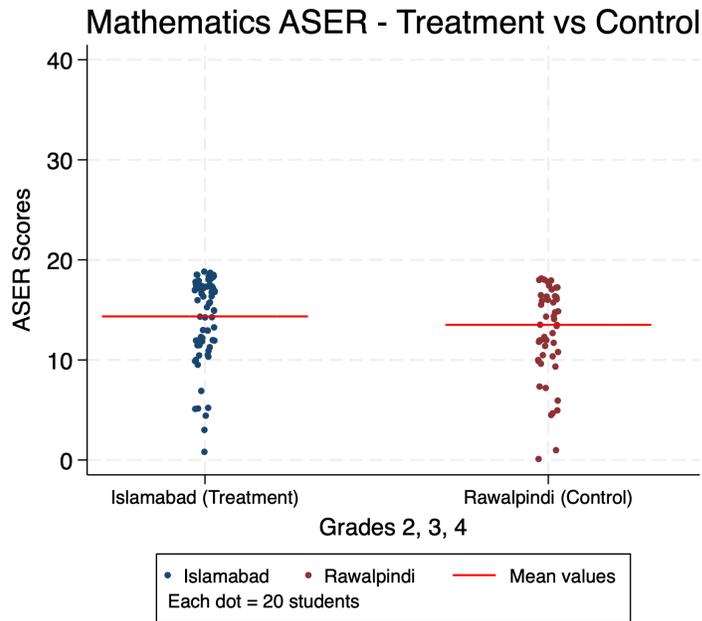
3.2.1.2 Mathematics

Summary

The mathematics ASER test had a maximum score of 18 points. For grade 4, the maximum score was 34 points, which included 18 points from the ASER test and an additional 16 points from Taleemabad's mathematics test.

In grade 2, the mean ASER mathematics test score was 12.03 for Islamabad and 10.81 for Rawalpindi. Grade 3 showed improvement with mean ASER scores of 14.98 for Islamabad and 14.20 for Rawalpindi. In grade 4, students were assessed on both ASER and Taleemabad tests, achieving mean ASER scores of 16.03 (Islamabad) and 15.62 (Rawalpindi), while on the grade 4 Taleemabad test, Islamabad scored 4.42 and Rawalpindi scored 4.90. Overall, Islamabad students performed slightly better than Rawalpindi students across most grade levels.

In grade 2, the majority of students were at the 'Number Recognition (10-99)' level, with 43% from Rawalpindi and 49% from Islamabad. Grade 3 showed a similar pattern, with most students remaining at the 'Number Recognition (10-99)' level (31% Rawalpindi and 28% Islamabad). In grade 4, performance improved, with Rawalpindi students primarily at the 'Subtraction' level (32%) on the ASER test and Islamabad students reaching the 'Division' level (38%). On the Taleemabad test for grade 4, both districts showed lower performance, with most students at the 'Grade 4 Subtraction' level (16% Rawalpindi and 18% Islamabad). Refer to figures 3.2.9 to 3.2.16.



Figures 3.2.9

The summary statistics for the mathematics scores across the entire sample are presented below:

Table 3.2.3: Mathematics Student Score Statistics - Grades 2 and 3

Mathematics Test Scores				
Grade	Grade 2 (ASER test)		Grade 3 (ASER Test)	
	Islamabad	Rawalpindi	Islamabad	Rawalpindi
Maximum	18		18	
Minimum	0		0	
Mean	12.03	10.81	14.98	14.20
Standard Deviation	3.88	4.10	3.14	3.54

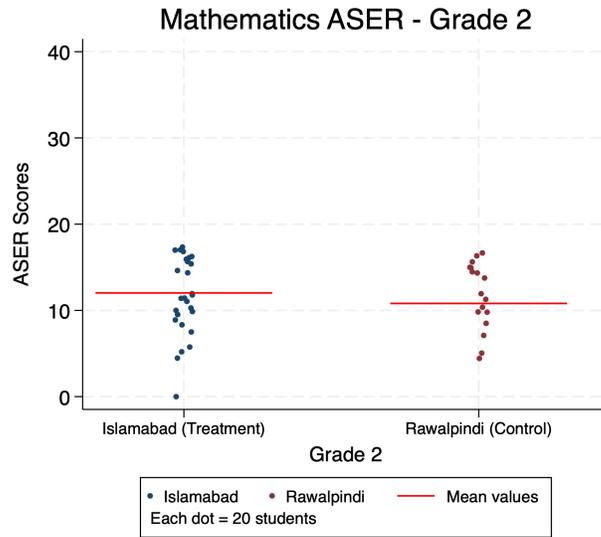
A. Islamabad and Rawalpindi schools' grade level distribution

Table 3.2.4: Mathematics Student Scores - Grade 4

Grade 4 Mathematics Test						
Test	ASER		Taleemabad		Total	
	Islamabad	Rawalpindi	Islamabad	Rawalpindi	Islamabad	Rawalpindi
Maximum	18		16		34	
Minimum	0		0		0	
Mean	16.03	15.62	4.42	4.90	20.45	20.52
Standard Deviation	2.54	2.84	3.67	3.93	5.48	5.97

The following subsequent section breaks down the ASER and Taleemabad test performance for each grade in Islamabad and Rawalpindi schools.

→ Grade 2: Mathematics



Figures 3.2.10

The Grade 2 students in Islamabad achieved a mean (average) score of 12.03 out of 18 in the ASER test. On the other hand, Grade 2 students in Rawalpindi achieved an overall mean score of 10.81 out of 18.

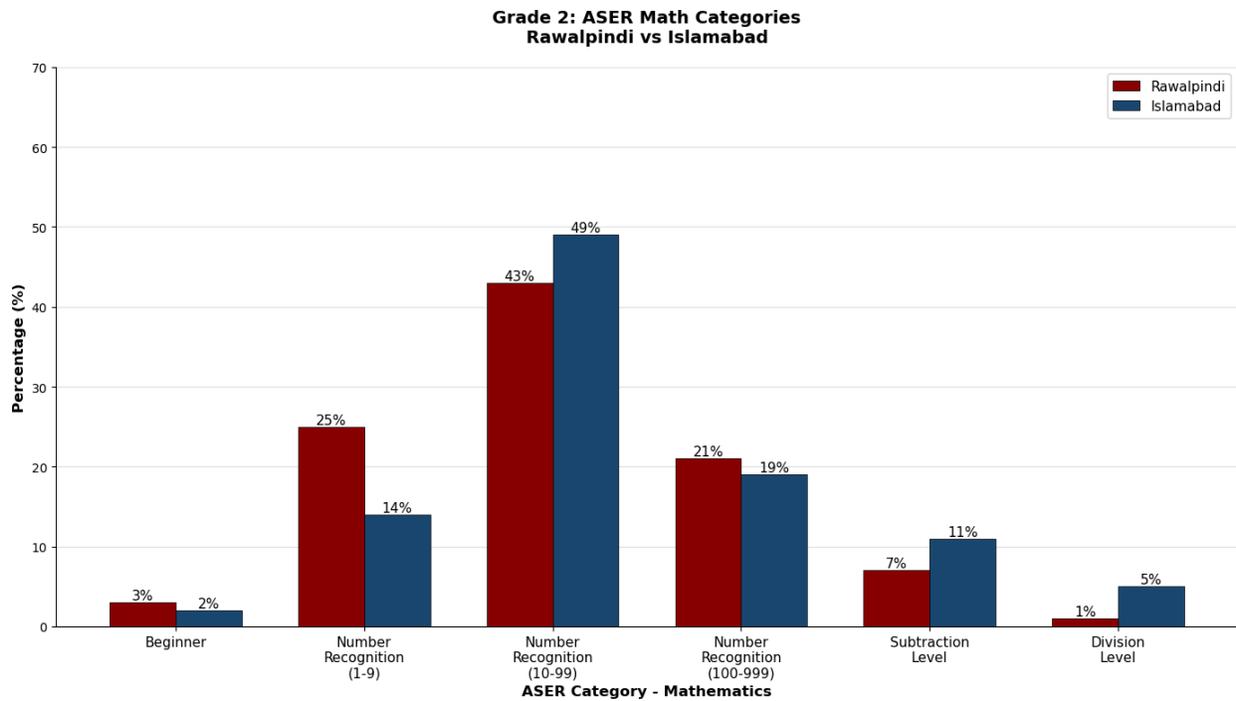
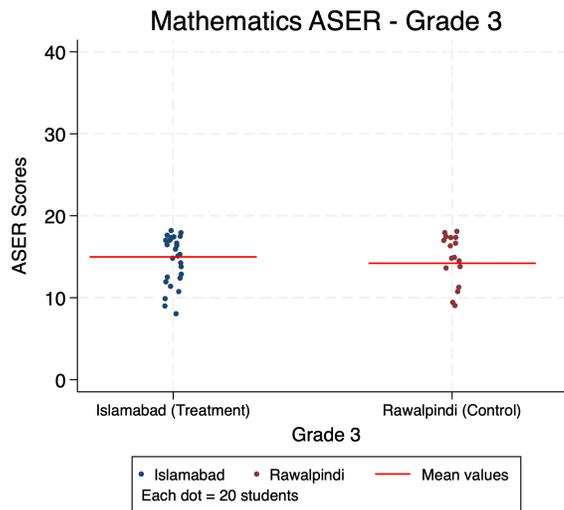


Figure 3.2.11

In Islamabad, on the ASER categories in Maths for students (explained in figure 3.2.11), 2% were on the ‘beginner level’ (fail to attempt any question), 14% of students were on ‘Number Recognition (1- 9) level’ (can recognise 4 out of 5 single digit numbers but fail to recognise double digit numbers), 49% of students were on ‘Number Recognition(10- 99) level’ (can recognise 4 out of 5 double digit number but fail recognise three digit numbers), 19% were on ‘Number recognition (100-200) level’ (can recognise three digit number but fail to solve two subtraction questions or is only able to solve one question), 11% of students were on “Subtraction level”(can correctly solve any two subtraction questions but fail to do division), 5% of students were on ‘Division level’ (can correctly solve one division question).

In Rawalpindi, 3% were on the ‘beginner level’, 25% of students were on ‘Number Recognition (1- 9) level’, 43% of students were on ‘Number Recognition(10- 99) level’, 21% were on ‘Number recognition (100-200) level’, 7% of students were on “Subtraction level”, 1% of students were on ‘Division level’.

→ **Grade 3: Mathematics**



Figures 3.2.12

The Grade 3 students in Islamabad achieved a mean score of 14.98 out of 18 in the ASER test. Grade 3 students in Rawalpindi obtained a mean score of 14.20.

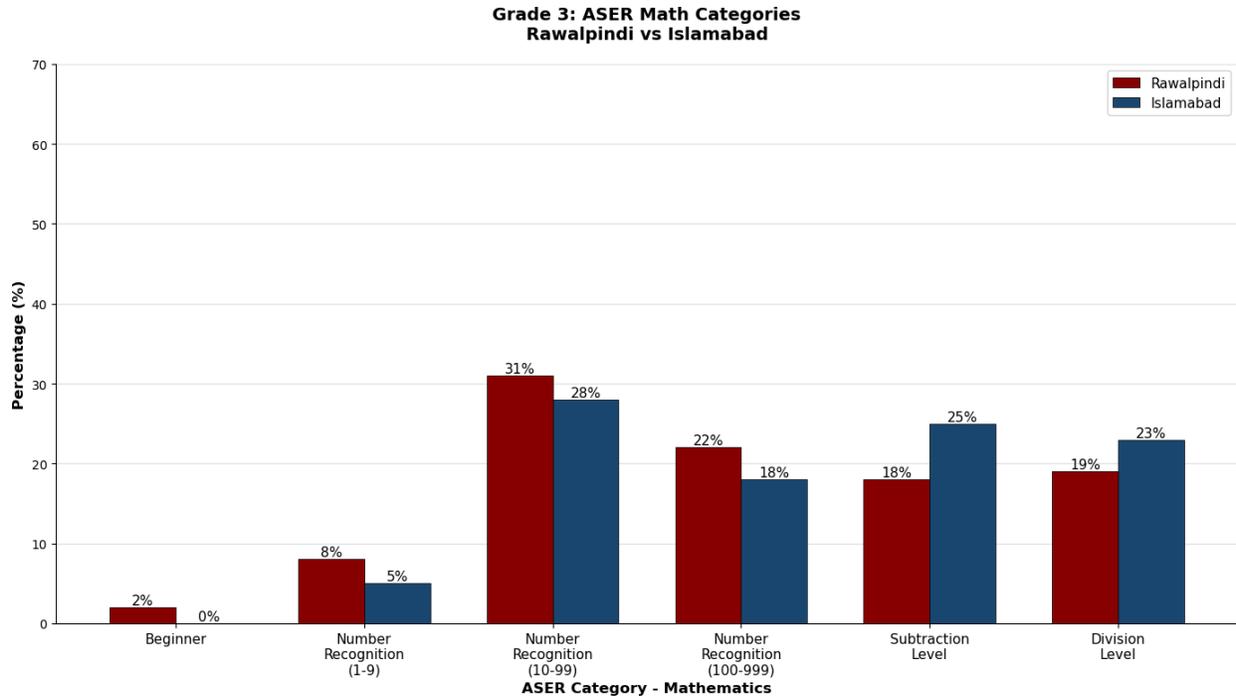
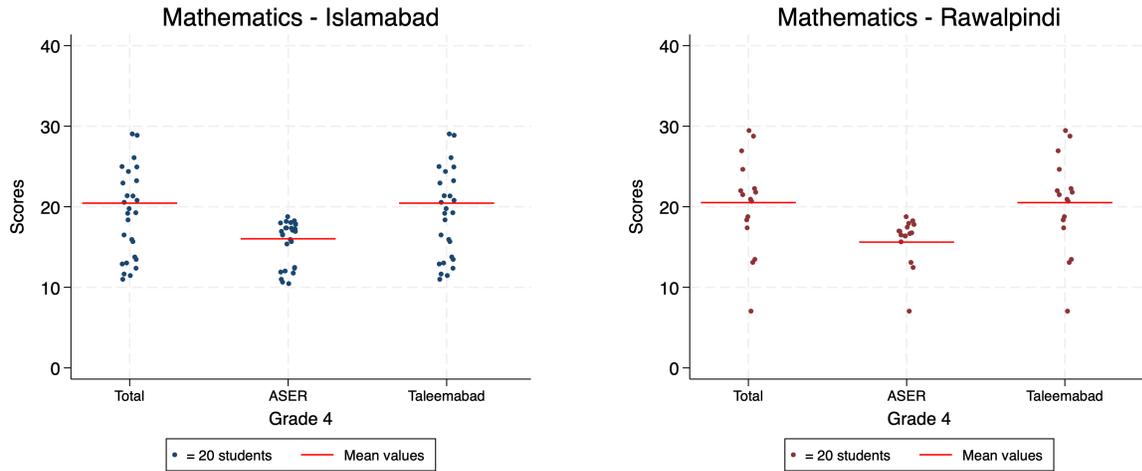


Figure 3.2.13

In Islamabad, on the ASER categories in Maths for students (explained in figure 3.2.13), 0% were on the ‘beginner level’ (fail to attempt any question), 5% of students were on ‘Number Recognition(1- 9) level’ (can recognise 4 out of 5 single digit numbers but fail to recognise double digit numbers), 28% of students were on ‘Number Recognition(10- 99) level’ (can recognise 4 out of 5 double digit number but fail to recognise three digit numbers), 18% were on ‘Number recognition (100-200) level’ (can recognise three digit number but fail to solve two subtraction questions or is only able to solve one question), 25% of students were on “Subtraction level”(can correctly solve any two subtraction questions but fail to do division), 23% of students were on ‘Division level’ (can correctly solve one division question).

In Rawalpindi, 2% were on the ‘beginner level’, 8% of students were on ‘Number Recognition(1- 9) level’, 31% of students were on ‘Number Recognition(10- 99) level’, 22% were on ‘Number recognition (100-200) level’, 18% of students were on “Subtraction level”, 19% of students were on ‘Division level’.

→ **Grade 4: Mathematics**



Figures 3.2.14a, 3.2.14b

The grade 4 students in Islamabad achieved an average score of 16.03 out of 18 in the ASER test, and in the Taleemabad test, achieved a mean score of 5.31 out of 16. In comparison, grade 4 students in Rawalpindi achieved an overall mean score of 15.62 out of 18 in the ASER test, while their mean score on the Taleemabad Maths test was slightly higher than students from Islamabad at 5.59.

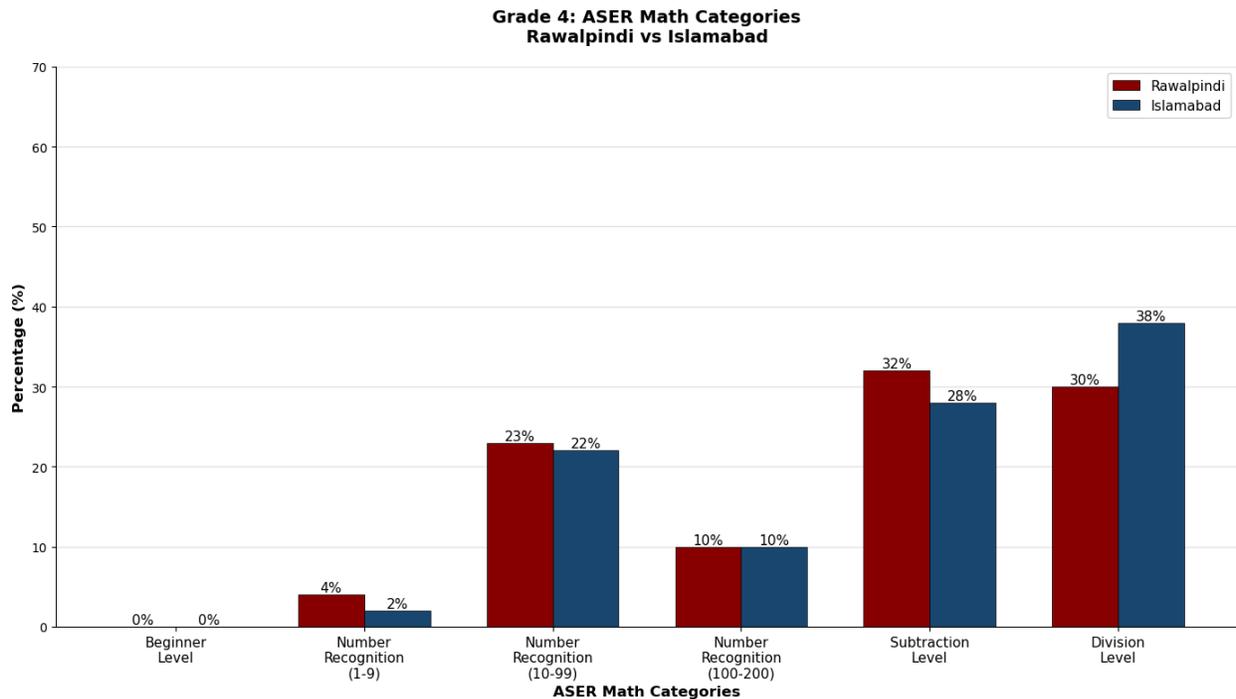


Figure 3.2.15

In Islamabad, on the ASER categories in Maths for students (explained in figure 3.2.15), 0% were on the ‘beginner level’ (fail to attempt any question), 2% of students were on ‘Number Recognition(1- 9) level’ (can recognise 4 out of 5 single digit numbers but fail to recognise double digit numbers), 22% of students were on ‘Number Recognition(10- 99) level’ (can recognise 4 out of 5 double digit number but fail to recognise three digit numbers), 10% were on ‘Number recognition (100-200) level’ (can recognise three digit number but fail to solve two subtraction questions or is only able to solve one question), 28% of students were on “Subtraction level”(can correctly solve any two subtraction questions but fail to do division), 38% of students were on ‘Division level’ (can correctly solve one division question).

In Rawalpindi, 0% were on the ‘beginner level’, 4% of students were on ‘Number Recognition(1- 9) level’, 23% of students were on ‘Number Recognition(10- 99) level’, 10% were on ‘Number recognition (100-200) level’, 32% of students were on “Subtraction level”, 30% of students were on ‘Division level’.

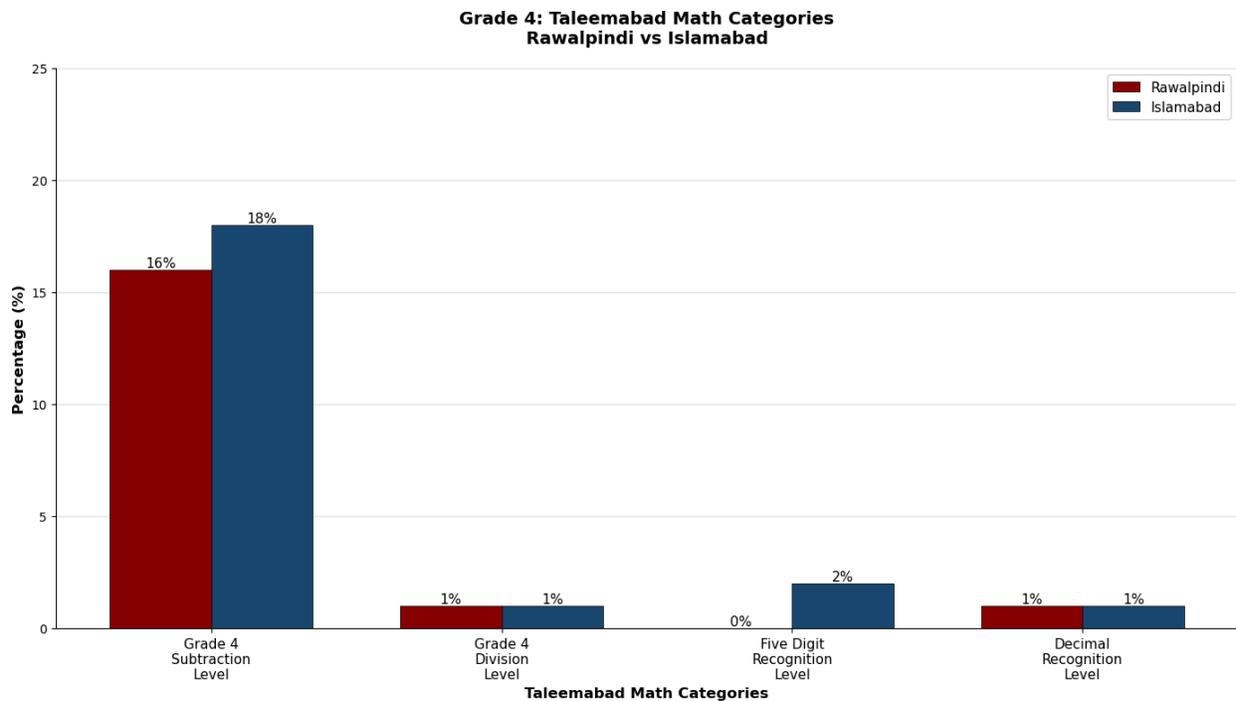


Figure 3.2.16

In Islamabad, 22% of the total Math students were in Taleemabad's Math test categories, and 79% were unable to be in these categories as they failed to meet the benchmarks. Out of these 22% students, 18% of the students on the ‘Grade 4 Subtraction level’ (if the child can solve a 4 digit and a 5 digit subtraction),

1% on the 'Grade 4 Division level' (if the child can solve the Taleemabad division), 2% on the 'Five Digit Recognition level' (if the child can recognise 4 out of 5 five digit numbers) and 1% of the students were in 'Decimal Recognition level' (if the child can recognise 4 out of 5 five decimal numbers).

In Rawalpindi, 18% of the students were able to meet Taleemabad's Math test categories, and 82% were unable to meet these categories as they failed to meet the benchmarks. Out of these 18% students, 16% of the sample were on 'Grade 4 Subtraction level', 1% on 'Grade 4 Division level', 0% on the 'Five Digit Recognition level' and 1% on the 'Decimal Recognition level'.

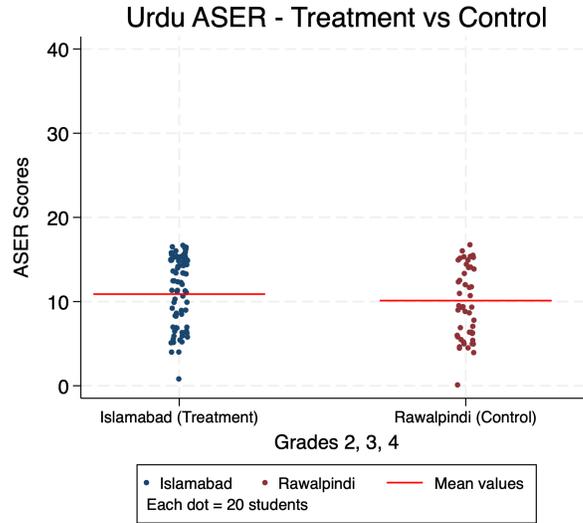
3.2.1.3 Urdu

Summary

The Urdu ASER test had a maximum score of 16 points. For grade 4, the maximum score was 21 points, which included 16 points from the ASER test and an additional 5 points from Taleemabad's test.

In grade 2, the mean ASER Urdu test score was 8.04 for Islamabad and 7.38 for Rawalpindi. Grade 3 showed improvement with mean ASER scores of 11.55 for Islamabad and 10.86 for Rawalpindi. In grade 4, students were assessed on both ASER and Taleemabad tests, achieving mean ASER scores of 13.11 (Islamabad) and 12.26 (Rawalpindi), while on the Taleemabad test, Islamabad scored 1.62 and Rawalpindi scored 1.43. Overall, Islamabad students consistently performed better than Rawalpindi students across all grade levels.

In grade 2, the majority of students were at the 'Letters' level, with 73% from Rawalpindi and 70% from Islamabad. Grade 3 showed improvement with students distributed between 'Letters' level (33% Rawalpindi and 36% Islamabad) and 'Words' level (29% Rawalpindi and 28% Islamabad). In grade 4, performance varied, with Rawalpindi students primarily at the 'Words' level (30%) and Islamabad students reaching the 'Comprehension' level' (33%) on the ASER test. On the Taleemabad test for grade 4, both districts showed low performance, with most students at the 'Grade 4 Sentences' level (3% Rawalpindi and 5% Islamabad). Overall, Islamabad students demonstrated better progression in Urdu literacy compared to Rawalpindi students. Refer to figures 3.2.17 and 3.2.24.



Figures 3.2.17

The summary statistics for Urdu scores across the entire sample are reported in the table below:

Table 3.2.5: Urdu Student Score Statistics - Grades 2 and 3

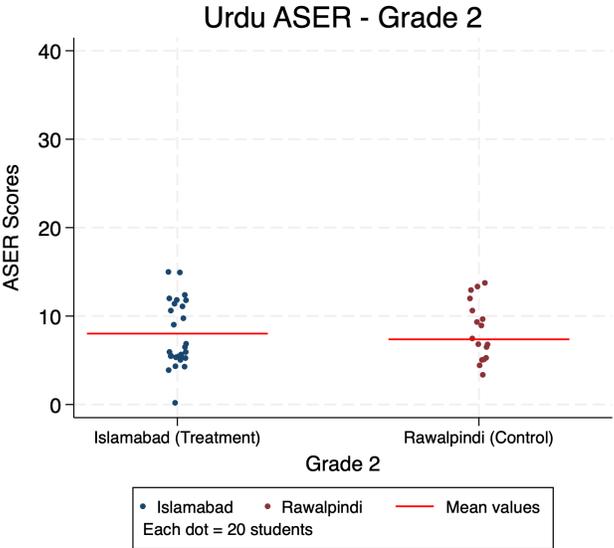
Urdu Test Scores				
Grade	Grade 2 (ASER test)		Grade 3 (ASER Test)	
	Islamabad	Rawalpindi	Islamabad	Rawalpindi
Maximum	16		16	
Minimum	0		0	
Mean	8.04	7.38	11.55	10.86
Standard Deviation	3.67	3.47	4.01	4.23

Table 3.2.6: Urdu Student Scores - Grade 4 Components

Grade 4 Urdu Test						
Test	ASER		Taleemabad		Total	
	Islamabad	Rawalpindi	Islamabad	Rawalpindi	Islamabad	Rawalpindi
Maximum	16		5		21	
Minimum	0		0		0	
Mean	13.11	12.26	1.62	1.43	14.74	13.68
Standard Deviation	3.36	3.57	1.26	1.21	4.26	4.49

The following subsequent section breaks down the ASER and Taleemabad test performance for each grade in Islamabad and Rawalpindi schools.

→ **Grade 2: Urdu**



Figures 3.2.18

Grade 2 students in Islamabad achieved a mean score of 8.01 out of 16. In Rawalpindi, Grade 2 students recorded a mean score of 7.37 out of 16.

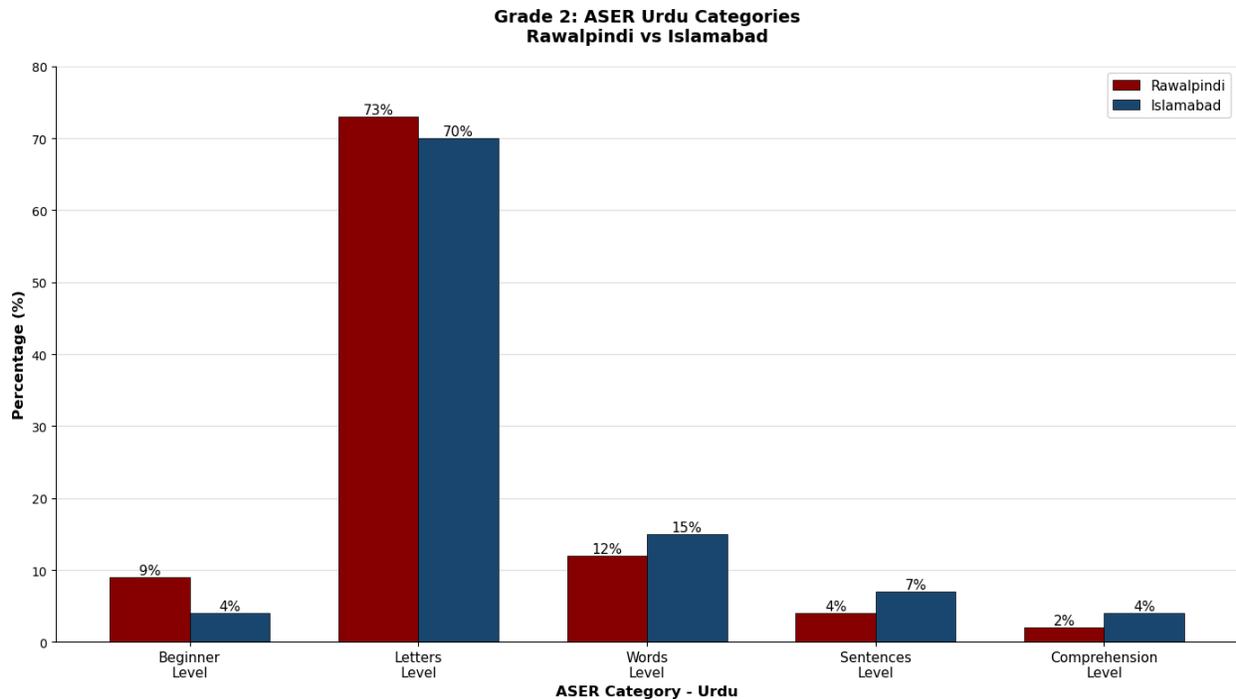
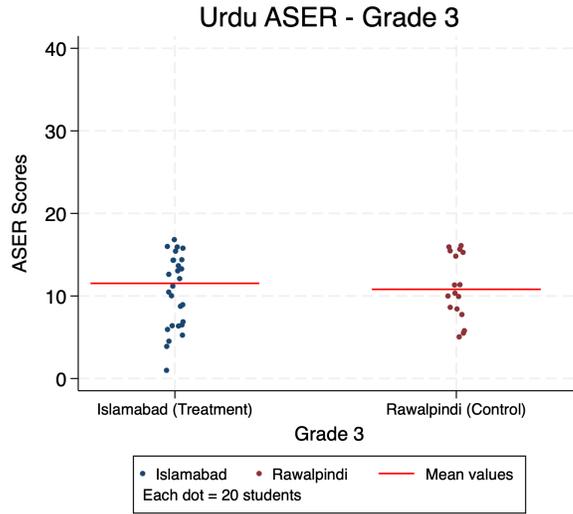


Figure 3.2.19

in Islamabad, on the ASER categories in Urdu for students (explained in figure 3.2.19), 4% were on the ‘beginner level’ (fail to attempt any question), 70% of students were on ‘letters level’ (can read 4 out of 5 letters but fail to read words), 15% of students were on ‘Words level’ (can read 4 out of 5 words but fail to read sentences), 7% of students were on ‘Sentences level’ (can read 4 out of 4 sentences with 2 or less than 2 mistakes but not read the comprehension) and only 4% were on ‘Comprehension level’ (can read a comprehension passage with 3 or less than 3 mistakes).

In Rawalpindi, 9% were on the ‘beginner level’, 73% of students were on ‘letters level’, 15% of students were on ‘words level’, 4% of students were on ‘Sentences level’ and only 2% were on ‘Comprehension level’ (figure 3.2.19).

→ Grade 3: Urdu



Figures 3.2.20

Grade 3 students in Islamabad achieved a mean score of 11.53 out of 16. In Rawalpindi, Grade 3 students obtained a mean score of 10.80.

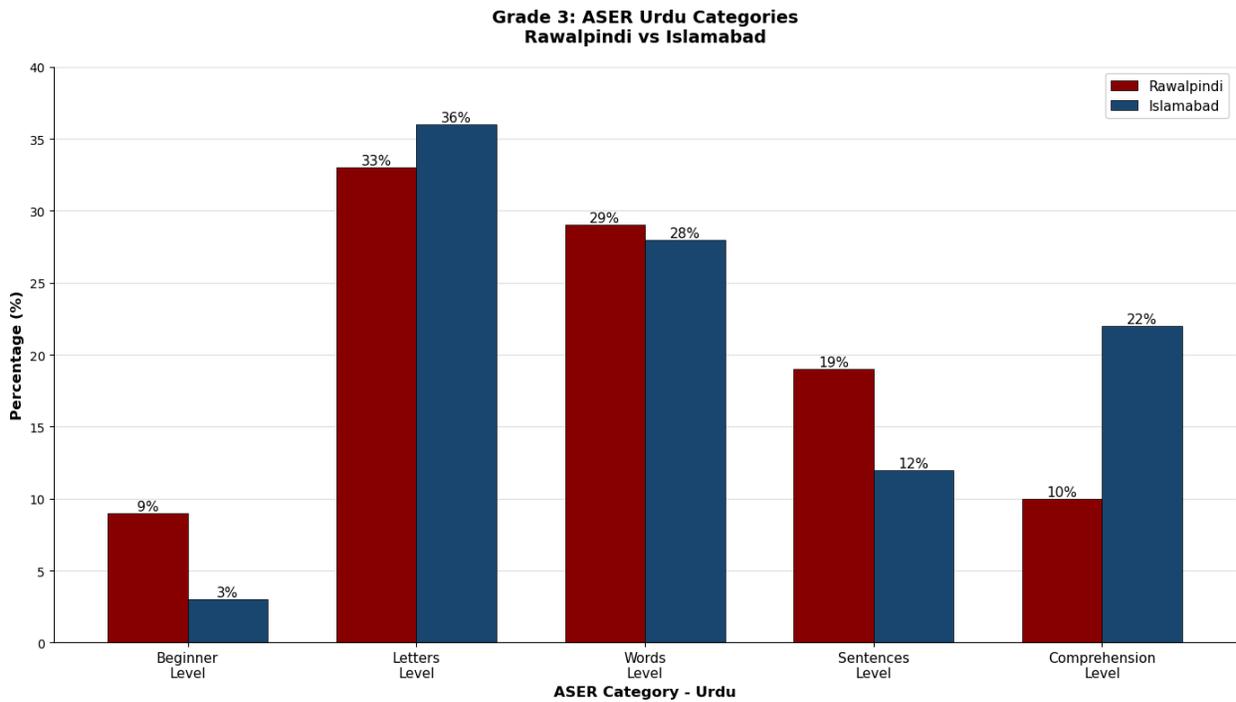


Figure 3.2.21

On the ASER Urdu test categories for students (explained in figure 3.2.21), in Islamabad), 3% were on the ‘beginner level’ (fail to attempt any question), 36% of students were on ‘letters level’ (can read 4 out of 5 letters but fail to read words), 28% of students were on ‘words level’ (can read 4 out of 5 words but fail to read sentences), 12% of students were on ‘Sentences level’ (can read 4 out of 4 sentences with 2 or less than 2 mistakes but not read the comprehension) and only 22% were on ‘Comprehension level’ (can read a comprehension passage with 3 or less than 3 mistakes)

In Rawalpindi, 9% were on the ‘beginner level’, 33% of students were on ‘Letters level’, 29% of students were on ‘words level’, 19% of students were on ‘Sentences level’ and only 10% were on ‘Comprehension level’.

→ **Grade 4: Urdu**

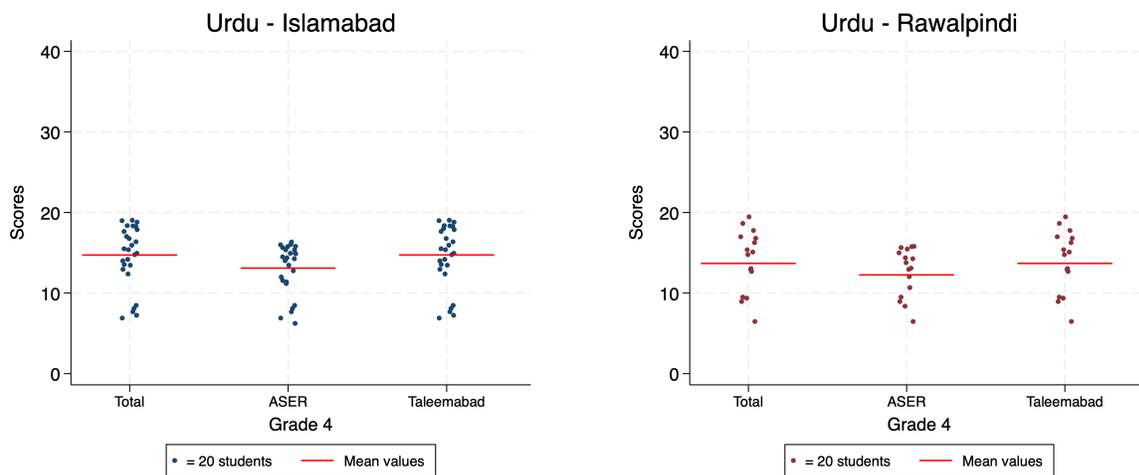


Figure 3.2.22a, 3.2.22b

The grade 4 students in Islamabad achieved a mean score of 14.72 out of 21 in Urdu tests. The ASER Urdu test accounted for most of the performance, with an average score of 13.10 out of 16 and the Taleemabad’s Urdu test, students' scores averaged 1.62 out of 5. In Rawalpindi, grade 4 students obtained a mean score of 13.69 in Urdu. The average ASER Urdu test score was 12.25 out of 16, while Taleemabad's Urdu test yielded a mean of 1.43 out of 5.

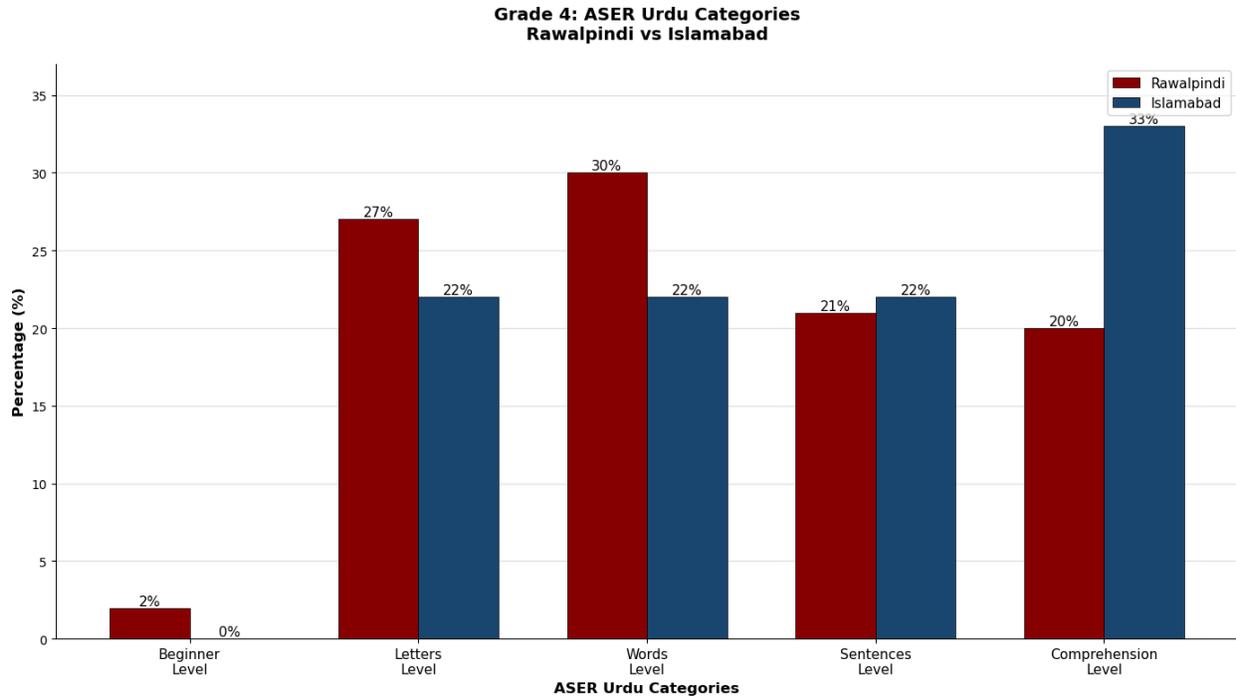


Figure 3.2.23

In Islamabad, on the ASER Urdu test categories for students (explained in figure 3.2.23), 0.4% were on the ‘beginner level’ (fail to attempt any question), 22% of students were on ‘letters level’ (can read 4 out of 5 letters but fail to read words), 22% of students were on ‘words level’ (can read 4 out of 5 words but fail to read sentences), 22% of students were on ‘Sentences level’ (can read 4 out of 4 sentences with 2 or less than 2 mistakes but not read the comprehension) and only 33% were on ‘Comprehension level’ (can read a comprehension passage with 3 or less than 3 mistakes)

In Rawalpindi, 2% were on the ‘beginner level’, 27% of students were on ‘letters level’, 30% of students were on ‘words level’, 21% of students were on ‘Sentences level’ and only 20% were on ‘Comprehension level’.

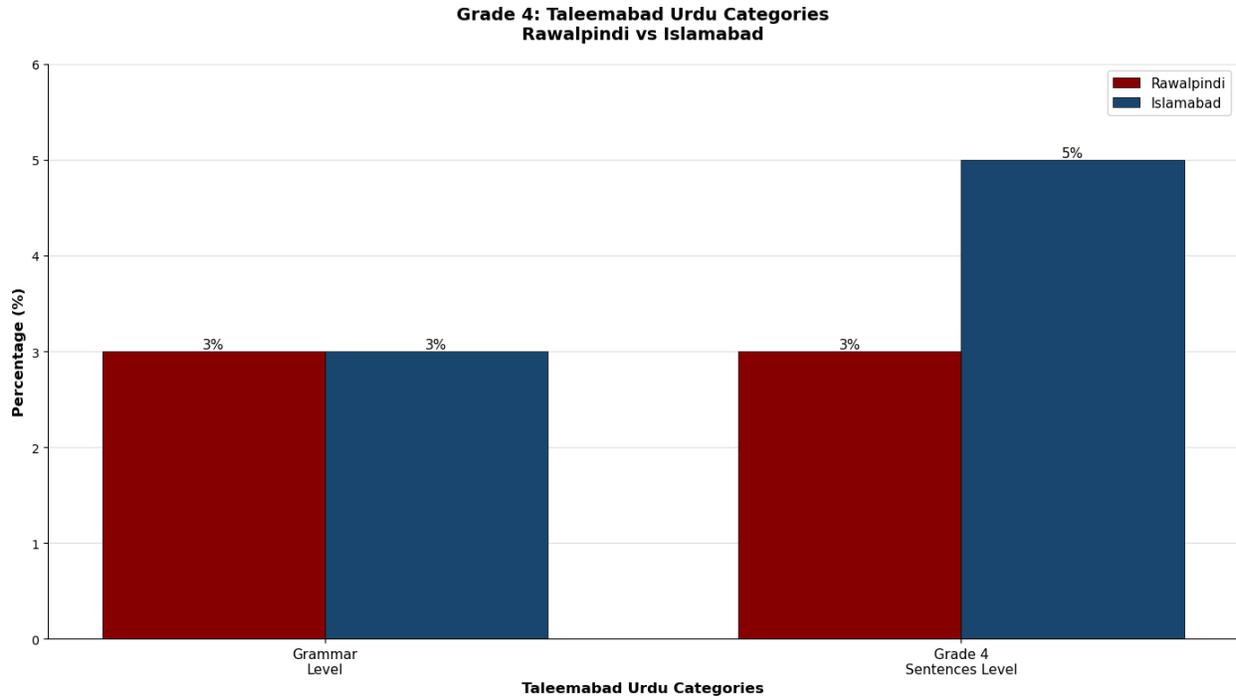


Figure 3.2.24

In Islamabad, only 8% of the students were able to meet Taleemabad's Urdu test categories (in figure 3.2.24) and 92% were unable to meet these categories as they failed to meet the benchmarks. Out of these 8% students, 3% of the students were on the 'Grammar level' (if the child can answer both the grammar questions correctly) and 5% on the 'Grade 4 Sentences level' (If the child is able to make two sentences).

In Rawalpindi, 6% of the students met Taleemabad's Urdu test categories while 94% were unable to meet these categories as they failed to meet the benchmarks. Out of this 6%, 3% of the students are on the 'Grade 4 - Grammar level' and 3% on the 'Grade 4 Sentences level'.

3.2.2 Regression Analysis

Summary

The regression results show that treatment effects varied across subjects and grade levels on the continuous ASER test total score variable. Students in Islamabad schools performed better than their peers in Rawalpindi, although the differences were not uniform across all grades and subjects which is discussed in the sections below. The tables 3.2.7 - 3.3.9 show the regression results for the CERP's ASER test scores obtained by students, for all three subjects (English, Math, and Urdu). For grade 4 total score

variable, in addition to the ASER test questions we take into account Taleemabad test questions as well (refer to tables 3.2.10 - 3.2.12).

3.2.2.1 English

In the ASER English test (refer to table 3.2.7), grade 3 students in Islamabad scored 1.4 points higher ($p < 0.10$) on average whereas the difference was larger for grade 4 i.e. 2.3 points ($p < 0.01$). In grade 4, on the Taleemabad test scores (refer to table 3.2.10), scores differed significantly for English, with students scoring 2.2 points higher ($p < 0.01$).

3.2.2.2 Math

In the ASER Mathematics test (refer to table 3.2.8), scores were significantly higher only for grades 3 and 4, but not grade 2. Grade 3 students in Islamabad scored 0.95 points higher ($p < 0.05$) on the Maths test compared to Rawalpindi students, and 0.67 points higher ($p < 0.10$) in grade 4. In the grade 4 Taleemabad test (refer to table 3.2.11), there was no statistically significant difference to note in scores between students in Rawalpindi and Islamabad.

3.2.2.3 Urdu

In the ASER Urdu test (refer to table 3.2.9), grade 4 students in Islamabad scored 0.9 points higher ($p > 0.10$) on the Urdu test compared to Rawalpindi students. In contrast, the score differences for grade 2 and grade 3 were not statistically significant to note in scores between students in Rawalpindi and Islamabad. For the grade 4 Taleemabad Urdu test (table 3.2.12), the results were similar to the grade 4 Maths ASER test with no statistically significant difference found.

3.2.2.4 Urban areas

The majority of schools in Islamabad in our sample were from urban areas (58%) whereas the opposite was true for Rawalpindi (where 66% of the schools in the sample were from rural areas). In Islamabad, a total sample of 36 schools was taken with 15 rural schools and 21 urban schools. In Rawalpindi, a total sample of 32 schools was taken with 21 rural schools and 11 urban schools. Regression results showed higher scores in all three subjects in urban areas for all grade levels (grade 2,3,4), which lends to the idea of the “urban advantage” that has been studied globally. While large urban centers may pose administrative challenges, they tend to offer students distinct advantages, such as better-trained teachers

and improved school conditions, that support stronger academic outcomes, as also observed by Tayyaba (2012) in her study of Pakistan's rural-urban achievement gaps.

On the other hand, a study conducted by Bashir et al (2018) revealed that students of schools in urban areas could possibly have greater access to resources and opportunities for funding which contributes to their better school performance .

3.2.2.5 Student gender

We will be using the female student variable in the regression tables to understand the student gender effect on ASER and grade 4 Taleemabad test scores. To compare the grade 2 female academic performance with male students, we will be focusing on column 6 of the regression tables. Female students from grade 2 scored 0.7 points better on the ASER English test (refer to table 3.2.7 column 6), 0.5 points better on the ASER Urdu test (refer to table 3.2.9 column 6) and 0.56 points worse on the ASER Maths test (refer to table 3.2.8 column 6). Moreover, female students in grade 3 scored 1.02 points more than male students on the ASER Urdu section (refer to table 3.2.9 column 9), the female student variable for grade 3 ASER English and Mathematics tests was not significant.

The pattern remained the same for grade 4 students as well where female students outperformed male students on the ASER Urdu test by 0.4 points (refer to table 3.2.9 column 12) and scored 0.2 points higher in Taleemabad's Urdu test (refer to table 3.2.12 column 12) but scored worse on the Taleemabad's Maths test by 0.6 points (refer to table 3.2.11 column 12)

There is extensive literature that discusses similar gendered differences in primary school performance. Borgonovi et al. (2018) studied 15-year-old students from 59 developing and developed countries who took part in the Programme for International Student Assessment (PISA) and found that female students performed better in reading skills or language based subjects compared to their male counterparts whereas male students outperformed female students in the cognitive dimensions of problem solving. Other studies and large-scale assessments conducted in Pakistan corroborate these findings. For instance, data from Punjab's Grade 3 biannual assessments (2014–2018) show that female students significantly outperform male students in English and Urdu, while boys perform marginally better in Mathematics (Safdar, 2019).

Table 3.2.7: ASER English Score - Continuous Variable Regression

VARIABLES	ASER English Score											
	ASER Overall			Grade 2			Grade 3			Grade 4		
	1	2	3	4	5	6	7	8	9	10	11	12
Treatment (Islamabad)	1.532** (0.725)	1.483** (0.709)	0.683 (0.628)	0.733 (0.804)	0.673 (0.789)	0.245 (0.729)	1.847** (0.796)	1.829** (0.778)	1.432* (0.732)	1.731** (0.797)	1.620** (0.774)	2.338*** (0.761)
Female Student		0.624*** (0.239)	0.612** (0.242)		0.953*** (0.317)	0.684** (0.326)		0.860** (0.370)	0.621 (0.380)		0.720** (0.354)	0.523 (0.366)
Urban			2.502*** (0.617)			2.090*** (0.692)			0.901 (0.692)			2.104*** (0.667)
Availability of drinking water			-1.733 (2.451)			-1.950 (2.631)			-2.736 (2.564)			
Student - Teacher Ratio			-0.0108 (0.0279)			0.0288 (0.0323)			-0.0049 (0.0314)			-0.0001 (0.0301)
Female Teacher			1.488*** (0.500)			3.130*** (0.871)			3.972*** (0.823)			3.363*** (0.791)
Teacher qualification - Intermediate (FA./F.Sc.)			-3.115* (1.790)			-1.929 (3.667)						
Teacher qualification - Bachelors (B.A.)/(BSc)			-1.509 (2.109)			0.915 (4.472)			-2.347 (2.023)			4.570* (2.543)
Teacher qualification - Masters (M.A./MPhil)			-0.150 (2.123)			1.994 (4.472)			-1.149 (2.120)			5.204** (2.543)
Teacher qualification - PHD			1.073 (2.551)						-3.380 (2.988)			7.269** (3.367)
Teacher experience - Between 5-10 years			-0.182 (0.565)			2.315 (1.579)			-0.472 (1.065)			2.428** (1.077)
Teacher experience - Between 10-15 years			-2.952*** (0.548)			-0.140 (1.434)			-0.775 (1.054)			0.0618 (1.034)
Teacher experience - Between 15-20 years			-1.558*** (0.503)			1.168 (1.366)			0.0727 (1.018)			0.607 (0.951)
Teacher experience - Greater than 20 years			0.105 (0.573)			2.141 (1.492)			1.507 (1.025)			0.203 (1.007)

Constant	15.14*** (0.534)	14.81*** (0.537)	16.66*** (3.514)	12.49*** (0.595)	11.97*** (0.609)	7.541 (5.402)	15.55*** (0.593)	15.07*** (0.614)	16.13*** (3.698)	17.62*** (0.593)	17.29*** (0.598)	7.545** (2.980)
Observations	2,591	2,591	2,487	866	866	831	870	870	835	855	855	821
Number of groups	68	68	67	68	68	65	68	68	66	68	68	66

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3.2.8: ASER Math Score - Continuous Variable Regression

VARIABLES	ASER Score Maths											
	ASER Overall			Grade 2			Grade 3			Grade 4		
	1	2	3	4	5	6	7	8	9	10	11	12
Treatment (Islamabad)	0.836* (0.435)	0.862** (0.440)	0.861** (0.411)	1.151* (0.629)	1.181* (0.634)	0.277 (0.647)	0.705 (0.455)	0.702 (0.454)	0.950** (0.481)	0.533 (0.362)	0.557 (0.366)	0.671* (0.382)
Female Student		-0.320* (0.171)	-0.260 (0.176)		-0.449 (0.283)	-0.560* (0.287)		0.103 (0.241)	0.153 (0.261)		-0.149 (0.200)	-0.165 (0.211)
Urban			1.034*** (0.395)			1.427** (0.564)			0.357 (0.421)			1.080*** (0.333)
Availability of drinking water			0.737 (1.567)			-2.861 (2.376)			-1.343 (1.576)			1.778 (1.561)
Student - Teacher Ratio			-0.0128 (0.0181)			-0.00544 (0.0259)			-0.0103 (0.0193)			-0.0106 (0.0153)
Female Teacher			0.451 (0.350)			2.469*** (0.752)			1.326** (0.523)			0.295 (0.402)
Teacher qualification - Intermediate (FA./F.Sc.)			-1.796 (1.258)			-0.262 (3.293)			-1.719 (1.799)			
Teacher qualification - Bachelors (B.A)/(BSc)			0.804 (2.088)			1.076 (4.140)			-0.825 (2.353)			1.382 (2.012)
Teacher qualification - Masters (M.A/MPhil)			-0.326 (1.298)			-0.365 (3.410)			-1.692 (1.351)			0.518 (1.528)

Teacher qualification - PHD			0.242 (1.302)			0.523 (3.412)			-0.630 (1.419)			1.193 (1.513)
Teacher experience - Between 5-10 years			2.068*** (0.393)			-0.448 (1.044)			1.990** (0.889)			1.008 (0.942)
Teacher experience - Between 10-15 years			0.376 (0.403)			-0.929 (0.817)			0.131 (0.899)			-0.506 (0.936)
Teacher experience - Between 15-20 years			1.893*** (0.385)			0.524 (0.796)			1.354* (0.811)			0.285 (0.906)
Teacher experience - Greater than 20 years			2.015*** (0.387)			1.031 (0.844)			1.722** (0.830)			0.504 (0.902)
Constant	13.52*** (0.322)	13.69*** (0.337)	10.72*** (2.255)	10.89*** (0.468)	11.13*** (0.495)	11.63** (4.520)	14.29*** (0.341)	14.23*** (0.365)	13.85*** (2.417)	15.49*** (0.272)	15.56*** (0.289)	11.80*** (2.237)
Observations	2,591	2,591	2,458	866	866	844	870	870	811	855	855	803
Number of groups	68	68	67	68	68	67	68	68	65	68	68	65

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3.2.9: ASER Urdu Score - Continuous Variable Regression

VARIABLES	ASER Score Urdu											
	ASER Overall			Grade 2			Grade 3			Grade 4		
	1	2	3	4	5	6	7	8	9	10	11	12
Treatment (Islamabad)	0.752 (0.468)	0.701 (0.455)	1.037** (0.508)	0.520 (0.518)	0.477 (0.512)	0.631 (0.555)	0.586 (0.581)	0.560 (0.557)	0.250 (0.689)	0.989* (0.506)	0.898* (0.493)	1.192** (0.587)
Female Student		0.625*** (0.191)	0.756*** (0.190)		0.632** (0.263)	0.503* (0.266)		1.140*** (0.290)	1.024*** (0.297)		0.577** (0.252)	0.439* (0.259)
Urban			1.195** (0.484)			1.141** (0.479)			0.729 (0.530)			1.038** (0.505)
Availability of drinking water			3.276* (1.920)			0.419 (2.243)			0.878 (1.979)			7.294*** (2.431)

Student - Teacher Ratio			-0.0165 (0.0221)			-0.00697 (0.0219)			-0.00973 (0.0257)			0.00487 (0.0223)
Female Teacher			0.0393 (0.421)			1.679*** (0.627)			2.158*** (0.698)			1.656*** (0.586)
Teacher qualification - Intermediate (FA./F.Sc.)			-1.807 (1.204)			-1.237 (3.100)			0.941 (2.188)			-0.419 (2.999)
Teacher qualification - Diploma			-2.207 (1.571)			-0.741 (3.828)			-0.172 (2.910)			
Teacher qualification - Bachelors (B.A)/(BSc)			-1.778 (1.226)			-0.732 (3.262)			0.435 (1.613)			-0.933 (1.910)
Teacher qualification - Masters (M.A/MPhil)			-0.599 (1.223)			-1.013 (3.247)			0.0632 (1.672)			-0.852 (1.894)
Teacher qualification - PHD			4.052** (1.672)						0.635 (2.572)			0.142 (2.594)
Teacher experience - Between 5-10 years			3.901*** (0.551)			1.557 (0.994)			1.034 (1.185)			3.421** (1.649)
Teacher experience - Between 10-15 years			2.799*** (0.506)			2.133** (0.952)			1.308 (1.134)			3.138* (1.648)
Teacher experience - Between 15-20 years			2.799*** (0.477)			1.633* (0.846)			2.143** (1.010)			3.332** (1.562)
Teacher experience - Greater than 20 years			3.147*** (0.457)			1.653* (0.862)			1.980** (0.938)			2.990* (1.528)
Constant	10.13*** (0.347)	9.810*** (0.351)	3.847 (2.561)	7.479*** (0.387)	7.141*** (0.407)	4.346 (4.534)	10.94*** (0.434)	10.31*** (0.446)	6.019* (3.119)	12.11*** (0.378)	11.85*** (0.385)	0.120 (4.143)
Observations	2,591	2,591	2,546	866	866	854	870	870	854	855	855	838
Number of groups	68	68	68	68	68	67	68	68	68	68	68	68

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3.2.10: Taleemabad English Score - Continuous Variable Regression

VARIABLES	Taleemabad test score English		
	Grade 4		
	10	11	12
Treatment (Islamabad)	1.874*** (0.554)	1.824*** (0.545)	2.173*** (0.555)
Female Student		0.322 (0.257)	0.162 (0.266)
Urban			1.562*** (0.487)
Availability of drinking water			
Student - Teacher Ratio			-0.00241 (0.0220)
Female Teacher			2.270*** (0.577)
Teacher qualification - Intermediate (FA./F.Sc.)			
Teacher qualification - Bachelors (B.A)/(BSc)			2.445 (1.858)
Teacher qualification - Masters (M.A/MPhil)			2.880 (1.858)
Teacher qualification - PHD			3.364 (2.452)
Teacher experience - Between 5-10 years			1.362* (0.783)
Teacher experience - Between 10-15 years			0.499 (0.753)
Teacher experience - Between 15-20 years			0.404 (0.692)
Teacher experience - Greater than 20 years			0.414 (0.733)

Constant	3.648*** (0.413)	3.500*** (0.422)	-2.461 (2.176)
Observations	855	855	821
Number of groups	68	68	66

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3.2.11: Taleemabad Math Score - Continuous Variable Regression

VARIABLES	Taleemabad test score Math		
	Grade 4		
	10	11	12
Treatment (Islamabad)	0.0998 (0.665)	0.214 (0.679)	0.0985 (0.702)
Female Student		-0.725** (0.294)	-0.648** (0.308)
Urban			2.790*** (0.619)
Availability of drinking water			3.777 (2.893)
Student - Teacher Ratio			0.0259 (0.0283)
Female Teacher			0.533 (0.709)
Teacher qualification - Intermediate (FA./F.Sc.)			
Teacher qualification - Diploma			1.732 (3.745)

Teacher qualification - Bachelors (B.A)/(BSc)			3.365 (2.874)
Teacher qualification - Masters (M.A/MPhil)			3.694 (2.848)
Experience level of teacher - Between 5-10 years			1.932 (1.767)
Experience level of teacher - Between 10-15 years			0.524 (1.749)
Teacher experience - Between 15-20 years			1.229 (1.693)
Teacher experience - Greater than 20 years			2.046 (1.687)
Constant	5.206*** (0.494)	5.536*** (0.521)	-5.686 (4.155)
Observations	855	855	803
Number of groups	68	68	65

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3.2.12: Taleemabad Urdu Score - Continuous Variable Regression

VARIABLES	Taleemabad test score Urdu		
	Grade 4		
	10	11	12
Treatment (Islamabad)	0.236 (0.192)	0.195 (0.183)	0.139 (0.213)
Female Student		0.253** (0.0990)	0.190* (0.102)
Urban			0.387** (0.182)
Availability of drinking water			0.805 (0.908)
Student - Teacher Ratio			-0.00411 (0.00804)
Female Teacher			0.703*** (0.212)
Teacher qualification - Intermediate (FA./F.Sc.)			-0.175 (1.105)
Teacher qualification -, Diploma			
Teacher qualification - Bachelors (B.A)/(BSc)			-0.279 (0.691)
Teacher qualification -, Masters (M.A/MPhil)			-0.197 (0.685)
Teacher qualification - PHD			-0.305 (0.934)
Experience level of teacher - Between 5-10 years			0.212 (0.641)
Experience level of teacher - Between 10-15 years			0.317 (0.644)

Experience level of teacher - Between 15-20 years			0.323 (0.613)
Experience level of teacher - Greater than 20 years			0.402 (0.601)
Constant	1.389*** (0.144)	1.274*** (0.144)	-0.204 (1.568)
Observations	855	855	838
Number of groups	68	68	68

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0

3.2.2.6 Teacher's Gender

Apart from the factors listed above, teacher level explanatory variables are also significant in understanding student performance and their progression over time. The gender of the teacher is one such factor that has been studied extensively in education literature. In Sarghoda (Punjab, Pakistan), Imran et al. (2024) find no significant gender-based difference in pedagogical attitudes or student-learning practices between male and female primary teachers, except that male teachers outperformed their female counterparts in classroom management. In a study conducted in five Indian states (Andhra Pradesh, Gujarat, Uttarakhand, Rajasthan, and Chhattisgarh), Chudgar and Sankar (2008) report that female students taught by female teachers perform better in language subjects, although no similar advantage is observed in mathematics. Similarly, evidence from Francophone African countries by Lee et al. (2018) indicates that female teachers positively influence girls' achievement in both mathematics and reading, with limited effects on boys' performance.

Our results in [section 3.2.2](#) also show that female teachers have better student test scores compared to male teachers. This corroborates our findings of the classroom observations in [section 4.2](#) where the lesson that ranked the highest and was the most well-received by students was the lesson taught by a female teacher. When we studied the ASER test scores, we were able to compare student performance of female and male teachers by their mean values. In the ASER English test, students with female teachers scored 4.37 points higher than students with male teachers. For the ASER Urdu test scores, students with female teachers scored 2.32 points higher. Though for the ASER Mathematics section scores were not as high as the language tests but supported our finding, where students with female teachers scored 1.09 points higher than students with male teachers. While the available data support the findings that female teachers have better student test scores, however, it is important to note that there was some missing data on teacher gender for some students who had relatively high scores.

This is a globally studied and corroborated pattern, with studies showing that students of female teachers performed better on tests compared to those taught by male teachers, and that female teachers were better at improving student achievement (UNESCO, 2005; Hwang and Fitzpatrick, 2021).

Teacher experience

Teacher experience shows mixed results in our regressions. We see no statistically significant impact of teacher experience on Taleemabad's test for grade 4. On the other hand, ASER test scores for grade 3 Maths, and ASER Urdu scores for all grade levels show positive effects of a higher number of years of

teaching experience on student performance. This complex pattern suggests that the effect of more teaching experience is differential for different subjects and grade levels, which warrants further discussion and exploration.

There is considerable evidence globally that suggests a positive effect of more years of teacher experience. The reasons for this change might vary, with explanations ranging from more experience leading to better knowledge of how to perform a job over the years, to more time spent investing in one's skills and knowledge.

Several papers corroborate this claim citing that teacher productivity can increase with the years spent on the job, which may even be considered informal on-the-job training (Harris and Saas, 2011 ; Podolsky et al., 2019). The largest gains from experience in some cases are seen particularly in the initial years of a teacher's career, but also continue beyond, though not as great in magnitude (Harris and Saas, 2011). This means that an increase in experience can lead to the largest gains in student test scores in the early years of a teacher's career, and decrease in later years.

There are also some nuances that must be considered about the impact of teacher experience on student achievement. Podolsky et al. (2019) conducted an analysis of multiple independent studies published on the subject and found that the effect of teacher experience can depend on how supportive and professional the environment they are working in is. The schools that have supportive management could also encourage collaboration between teachers as evidenced by our qualitative findings from the principals as discussed in detail in section 3.5.1.

3.2.2.7 Teacher qualifications

The qualification level of the teacher is also an important determinant when assessing student performance. It should be noted that in our evaluation, improvements in student grades with higher teacher qualifications were seen only for the ASER English test for grade 4.

There is mixed evidence to be found for the impact of higher teacher qualifications on student test scores. While some studies report a positive impact, others see no statistically significant effect. It is often argued that higher qualifications translate to better teacher quality due to better knowledge and information. However, some studies make the point that qualifications are only impactful when considered in conjunction with other teacher level variables.

Croninger et. al (2007) finds that the possession of an advanced degree alone does not have any impact on student achievement. However, the type of degree matters: students of teachers who had specialized degrees e.g. elementary education degrees achieved more than those with other types of degrees. This might be one of the reasons why we did not see a significant impact of teacher qualifications on student test scores in our context.

4. Qualitative data findings

The section focuses on the key findings from Key Informant Interviews, which capture stakeholder experiences and perceptions of the NIETE program, summarizes insights from classroom observations using the video recording method, providing an in-depth view of teaching practices, student engagement, and the practical implementation of scripted pedagogy within classrooms and gives an overview of the feedback given by stakeholders to improve the NIETE intervention.

4.1 Findings from Key Informant Interviews

4.1.1 Teachers and Principals' Perspectives

4.1.1.1 Experiences with the NIETE App and its Resources

- **NIETE App**

Section summary

Teachers and principals generally described the NIETE App as user-friendly and accessible, with bilingual content (Urdu and English) that supported classroom delivery and differentiated instruction. Teachers appreciated the structured lesson plans, clear guidance for managing mixed-ability classrooms, and the regular updates that reflected user feedback. Principals similarly noted that the app improved teacher preparedness and confidence, allowing for smoother lesson execution. However, both teachers and principals identified recurring implementation challenges. These included the app's limited flexibility- preventing teachers from adjusting lesson schedules - the frequency of software updates that disrupted teaching time, and recurring technical issues such as poor audio quality and device compatibility. Principals further highlighted that repetitive lesson content reduced engagement. A key systemic concern was the limited digital readiness of teachers and insufficient hands-on training. Principals expressed that the existing model, where only a few teachers were directly trained and expected to instruct others, resulted in weak and inconsistent knowledge dissemination across the teaching staff. Additionally, connectivity issues and limited resources exacerbated these difficulties, particularly in underfunded schools. Finally, mixed perspectives emerged regarding the app's student categorisation feature. While some teachers felt that labelling students as "beginner," "intermediate," or "advanced" could restrict growth and overlook individual potential, principals viewed it as a useful tool to tailor instruction and motivate student progress.

Several teachers described the NIETE app as easy to navigate, with lessons available in both Urdu and English, making it more accessible across different teaching contexts.

“First of all, the app is user-friendly. It’s not difficult to use. The lessons are available in both Urdu and English now.” - P2

Teachers also recognised that the app was designed to support differentiated instruction, guiding how to assist both weaker and stronger students effectively.

“I appreciated that it included lesson plans and guidance on how to support students from beginning to end. It outlined how to group students, how to support weaker students, and how to manage stronger ones. It provided all the information we needed. We benefited greatly from it, and so did the students.” -

P3

Additionally, teachers acknowledged that the app continued to improve over time based on user feedback, with new features and updates addressing identified gaps. This responsiveness contributed to a more positive user experience.

“It kept updating and adding new features. Whenever something was not up to the mark, we gave feedback, and updates were made. That was a good experience.” - P3

One principal remarked that teachers seemed more relaxed and better prepared in their classroom environments after the introduction to NIETE. She noted,

“When the teacher herself is relaxed, and something is mentally clear, then she will help the students. This is because of the NIETE app.” - P9

While NIETE App and resources were considered beneficial by some teachers, as stated above, several challenges were consistently highlighted as barriers to smooth implementation. These challenges impacted both the efficiency of lesson delivery and teachers’ ability to fully engage with the app’s intended functions.

Key Challenges Identified:

1. Lack of flexibility in the app

Some teachers reported that the app lacks flexibility, particularly when trying to adjust lesson pacing or revisit missed content. If a teacher missed a scheduled lesson due to leave or other reasons, they were unable to reschedule the module to align with student needs. One teacher explained,

“If I missed a syllabus date due to leave, I can’t go back (in the app). I must follow the schedule... The app should allow flexibility.” - P1

One principal also noted frustration with the app’s inflexible rating system. The NIETE app included a colour-coded rating system that tracked teacher activity and app usage, categorising users into green, yellow, or red zones based on their level of engagement.

“If you don’t use it (the app) regularly, your rating drops to the red zone. So then I told my focal person to remove my name because I wasn’t able to use it every day. I didn’t want the school to go from green to yellow and then red because of me. But in the beginning, I definitely used it a lot.” - P10

2. Challenges in digital adoption and minimal training

A few principals said that teachers struggled with the app:

“Many of our teachers were unable to understand the basics of the NIETE app in the beginning, including things like logging in to the app or making their timetable”. - P11

Another elaborated that not all teachers are on the same level to understand the app and emphasized the insufficient in-person training provided to teachers, they explained

“Whether the person needed six days to pick it up, or six hours, or six minutes, everyone had to do it at the same time,” - P12

“These technical things, like the app, can’t be taught properly by just one person, like Azka. She can’t train all the teachers. During training, she calls one or two teachers and explains it to them. So you tell me, if one or two learn, how will the other 30 teachers understand?” - P12

This points to the limitations of relying on a training approach, where only a few individuals are trained directly, resulting in barriers to knowledge transfer and limited reach across the teaching staff.

3. **Technical issues**

A teacher described the app as prone to frequent updates, often launching into update mode at the start of lessons, which resulted in wasted instructional time.

“It keeps updating... as soon as we turn it on, it goes into update mode. It takes 10 to 15 minutes. Our lesson is over by then,” - P5

Additionally, some principals reported frequent issues with the application, further affecting teachers’ ability to access and deliver content seamlessly.

“I must tell you that there were so many issues. Teachers used to say that our apps don't work...some teachers complained that some topics were repeated.” - P8

4. **Audio and device compatibility issues**

More than a few teachers highlighted practical issues with audio quality and device compatibility. Many noted that mobile devices lacked sufficient volume for classroom settings, especially in noisy environments since teachers have to play some videos in class from the App as part of the lesson plans.

“My phone isn't loud enough... so we bought mics ourselves so that students at the back can hear, especially during summer when the fans are on.” - P1

5. **Labelling students on their learning abilities**

While a teacher in the section above praised the app’s categorisation section, another teacher raised concerns about the fairness of categorizing students strictly by learning ability within the NIETE app. While the app divides students into beginner, intermediate, and advanced categories, this teacher expressed that such fixed labels may overlook the individual strengths and potential for growth in different subjects. They emphasized that a student's abilities are not static and can vary across subjects and over time. The teacher explained:

“The app has categories: beginners, intermediate, and advanced. Our head, Ma’am Ayesha, had suggested that even in the app, they should categorize students accordingly. But we think labeling students like that is not right. Students can improve at any time. Some are good in Math, others in English. It depends on the child’s interest.” - P5

On the other hand, a principal emphasized that the categorization of students helped differentiate students of different learning levels, reflecting the importance of tailoring instruction to individual needs.

“I was very happy with the category options for students to be put in: beginners, intermediate, and advanced. This way, teachers can identify which students are at which level. This way, slow learners can catch on and compete because when students come up the ladder, for example, they come up to intermediate from beginners, they feel good about themselves.” - P8

- **NIETE’s Scripted Lessons Plans**

Section summary

Teachers and principals largely agreed that NIETE’s scripted lesson plans brought structure, clarity, and efficiency to classroom instruction. Teachers appreciated that the plans reduced the burden of lesson preparation, improved time management, and supported consistent delivery through clearly defined segments. Several teachers and principals noted that the plans encouraged greater student autonomy, peer learning, and engagement. Principals also highlighted that teachers were now planning lessons more systematically, with one noting that NIETE provided “a clear direction and roadmap” for classroom preparation. A few principals emphasized that the intervention improved teachers’ professional confidence and ability to manage multiple subjects effectively. However, both teachers and principals also identified critical design and implementation challenges. Teachers reported that lesson plans were often too lengthy, rigid, and mismatched with student comprehension levels where the language was considered overly complex. Many expressed frustration over the lack of flexibility to adjust pacing or modify content for diverse learners. Some teachers felt constrained by the prescriptive nature of NIETE’s plans, stating that strict adherence limited creativity and discouraged the use of supplemental materials or alternative methods. Delays in uploading lesson plans further hindered preparation, forcing teachers to improvise or teach without adequate resources. Teachers also criticized the “one-size-fits-all” model, arguing that it failed to account for classroom variation in learning levels, while principals viewed the standardization positively believing it helped align instruction across schools and reduce disparities.

Almost all of the teachers interviewed emphasized that the lesson plans had eased their instructional workload and their planning. Teachers highlighted that NIETE helped alleviate the routine pressures of lesson preparation, classroom delivery, and instructional decision-making. One teacher said,

“We are under a lot of pressure, like lesson planning, conducting lessons, choosing the right teaching method, and guiding students. NIETE has helped in relieving this pressure.” - P2

The clarity and structure of the lesson plans were noted, with several teachers pointing out how the plans enabled them to manage time more effectively.

“They are systematic, improve time management, and make conducting many activities easier.” - P4

Another teacher praised the structure of lesson plans and shared that,

“The structure of NIETE’s lesson plans encouraged student autonomy. Students look forward to the hands-on segments... Earlier, the teacher did most of the work. Now students do it themselves.” - P3

Around half of the principals shared that the intervention helped teachers with planning in advance and saving time.

“They have a direction and roadmap now on how to prepare themselves for the next day or week and keep the student learning outcomes in mind.” - P6

Notably, a principal remarked more broadly on the availability of teaching resources on NIETE for teachers,

“You can assign them any subject. They can handle any subject without any problem. They know they will be able to teach it with the help of NIETE.” - P9

A teacher explained the improvement in peer learning and changed student attitudes towards one another after the implementation of scripted lesson plans,

“Previously, smarter students would sometimes mock weaker ones... but these lesson plans focus on peer learning. Now students work together to solve problems.” - P4

On the contrary, several teachers identified gaps in scripted lesson plans content and design.

Key Challenges identified:

1. Misalignment with student comprehension levels

A few teachers expressed difficulty in adapting lesson content when it did not match students' comprehension levels.

“While we understood them (lesson plans), the students could not. If the content is not on the same level as the students' comprehension, then it becomes an additional step for us to break it down,” - P4

2. Length and complexity of lesson plans

Some teachers noted that the lesson plans were too lengthy to cover effectively in a single day. The pace often forced teachers to rush, leaving weaker students behind. Additionally, the language, particularly in Urdu lessons, was described as overly complex, making delivery more difficult for both teachers and students.

“If we try to include everything in the plans, we can't finish the lecture in one day. Students need time to understand. If we try to rush through it, they can't recall or comprehend the concepts by the next day.” - P4

“The vocabulary should be simple and easy to teach... I am Urdu-speaking, but even I struggle with some words.” - P1

Echoing the sentiments shared by teachers, a few principals said,

“A balance is important where NIETE understands which lessons need to be long and which need to be short.” - P6

“They were frustrated by the time allocations in the plans.” - P10

3. Restriction on teacher creativity and autonomy

Some teachers expressed concern that NIETE's lesson plans were too prescriptive, limiting their ability to use additional resources or apply their own teaching methods. A teacher said,

“We used various materials. But now we feel limited because we have to strictly follow these

lessons. I used to give storybooks to kids and assign tasks like underlining nouns or verbs. Now I can't do that.” - P5

One of the principals also echoed this and said,

“Every individual has a teaching style and methodology. The NIETE Program is tackling several things but things that they don't take seriously, teachers take seriously. Individual differences can create these issues because NIETE dictates a certain methodology of teaching and teachers have their own methodologies.” - P6

Another principal remarked that teachers complained they could do better activities on their own, they said,

“I also brought two teachers from my high school (teachers who taught at the secondary school to primary) to help here. They split their time (between primary and high school). They had concerns. They said they could conduct better activities on their own,” - P10

This points to a belief among some staff that prescribed NIETE's content limited their ability to innovate or tailor learning to student needs.

4. Lessons plans not uploaded on time

One principal noted that content was not uploaded in advance limiting teachers' ability to prepare lessons ahead of time,

“My teachers have taught the first two chapters on their own because NIETE hadn't provided the lesson plans yet” - P10

She further added that,

“If lessons are uploaded in advance, especially before holidays, teachers can prepare. They reach home at 3:30, then check the app at night. In school, one teacher has one class, so expecting them to also check the app during class time isn't fair. If NIETE updates content earlier, that would help.” - P10

5. Pressure to complete the syllabus

A few of the principals shared that teachers were under pressure to complete the syllabus, revealing a conflict between program demands and curriculum coverage. One principal said,

“But for teachers, this becomes too burdensome to finish the syllabus.” - P8

showing that rather than easing the burden, NIETE’s structured pace and expectations sometimes added to existing pressures around academic timelines. They added that,

“The teachers are worried that they are unable to cover the syllabus if they teach through the app,” - P8

This reveals apprehensions about whether the platform's structure could realistically align with academic timelines, particularly in settings where flexibility and speed are often required. However, only one principal emphasized that NIETE gave enough time to the teachers to implement the lessons and did not affect syllabus completion saying

“They have not kept anything (on the NIETE App) which could be the cause of which our syllabus is affected or the revision time.” - P12

Several other principals did not agree with this and claimed that NIETE created additional hurdles in syllabus completion.

6. One-size-fits-all model of lesson plans

More than a few teachers consistently pointed out that the lesson plans followed a one-size-fits-all model that did not adequately account for differences in student learning levels across classrooms. This made it difficult for teachers to modify content to suit the pace or ability of their students.

“The lesson plans are designed for all of Islamabad and don’t apply uniformly to our students. Some are below that level, and some are above. Modifying those lesson plans can be difficult.” -

P4

For higher-grade students, teachers felt the content was often too basic, particularly when foundational skills were repeated unnecessarily. A teacher added,

“It is very good for young children to learn from the beginning... for the fourth and fifth classes, I don't think it is as beneficial. Older children already know how to read.” - P5

On the contrary, one principal noted that uniformity of lesson plans has ensured all schools are on the same level, bridging learning gaps. They said,

“All schools in the same region are now on the same level, and lesson planning for grades is the same. This means that even if students shift between schools now, there is less effort that teachers have to make to ensure they are on the same level as all other students in the class.” -

P11

The contradiction of experiences between teachers and principals on the lesson plan uniformity suggests that teachers had different experiences in classrooms using NIETE lesson plans compared to principals who were not directly using the lesson plans in the classrooms but were observing the bigger picture.

- **Continuous Professional Development (CPD) Videos**

Section summary

Teachers and principals generally viewed the CPD videos as valuable learning tools that provided clear, step-by-step guidance on classroom management, student grouping, and differentiated instruction. Many teachers emphasized that the videos translated theoretical concepts into practical strategies, helping them better support students with varying learning abilities. Principals also acknowledged that the videos contributed positively to teachers' professional growth. However, some teachers felt that the videos were overly simplistic and not fully aligned with classroom realities or the NIETE curriculum. They noted a disconnect between the training content, classroom application, and end-of-video quizzes, suggesting that the CPD materials could be better tailored to the specific instructional context.

Teachers highlighted that the teaching techniques explained in CPD videos were beneficial. As one teacher explained,

“The teacher training videos were quite good. Earlier, we knew some techniques but didn’t know how to apply them. NIETE broke them down (teaching methods through CPD videos) for us, and that made classroom implementation easier.” - P4

Teachers reported that the videos provided clear, step-by-step guidance on grouping students and tailoring support for weaker, average, and stronger learners.

“Professionally, it (videos) helped a lot. It showed us how to work with different kinds of students: weak, strong, and average. Alhamdulillah, we learned how to group students, support weaker ones, and challenge stronger ones. It guided us step-by-step.” - P3

On the other hand, a teacher reported that the CPD videos were too basic and not fully aligned with their classroom needs or the NIETE content.

“The training videos were different from the content. And the quiz at the end was also different. It’s not relevant. They’re two different things. The videos cover very basic stuff.” - P5

- **Challenges with the NIETE intervention**

Section Summary

Teachers and principals identified several barriers to effective NIETE implementation. The most common issue was poor internet connectivity, forcing teachers to rely on personal data, while principals linked it to limited school budgets. Many principals felt the rollout was too abrupt, leaving teachers unprepared, and noted widespread resistance to change especially among older teachers who struggled with digital tools. Teachers also admitted that younger colleagues adapted more easily, while some older staff faced difficulties using the app. Additionally, several principals reported that teachers were less engaged because they viewed NIETE as a short-term initiative. Concerns about sustainability and insufficient incentives further limited long-term motivation. Overall, the findings reveal that infrastructural constraints, limited digital readiness, and perceptions of the program’s impermanence reduced the effectiveness of implementation.

1. Internet connectivity

A major obstacle identified by all of the teachers interviewed was the unreliable internet access.

Teachers often had to rely on personal mobile data due to inconsistent school-provided connectivity. This affected their ability to access the app, conduct lessons, and meet expectations.

“One major issue is internet access... Sometimes we use our own data; sometimes the school provides it, but not always... Sometimes teachers even use their own money.” - P4

Additionally, being marked in the “red zone” for missed online attendance due to connectivity issues was seen as unfair and demotivating. A teacher reported,

“We make a lot of effort, but if teachers can’t come online due to internet problems, we get marked in the ‘red zone.’ That becomes a serious issue.” - P2

Similarly, a majority of the principals cited poor internet connectivity within school premises. One principal said,

“If we had proper internet access, it would be easier for teachers. Right now, they have to do it at home, sometimes during recess or late at night. That’s the biggest barrier.” - P10

Interlinked to this are affordability concerns where principals think the internet issue will remain persistent till the budget is allocated, a principal said,

“There is an internet problem in every class. So for teachers, it's difficult. So in terms of resources, till we have the budget, we cannot carry it out smoothly.” - P8

2. Implementation was abrupt

Similarly, one principal pointed out that rather than being gradually integrated, the intervention was abrupt and confusing, reducing its potential effectiveness.. They said,

“I do think enough time was not given. It was implemented too quickly. It was a kind of bombardment of what to do, how to do, when to do. The things were not clear.” - P8

3. Lack of understanding of technology and resistance to change

A principal emphasized a lack of understanding of the importance of implementing technology,

“We don’t understand this technology. We think it’s a routine activity, but it’s not. It requires a lot of focus, skills, and willpower to implement it....I have seen one or two teachers very involved in this. Some teachers were reluctant. It is a mixed ratio: 40% involvement, 60% lack of understanding or lack of interest.” - P7

“When you adopt something new, that resistance is there. People want to simplify their lives. It’s like a new system. They are used to their old ways. They have a comfort zone. When they leave that comfort zone, they delay things or don’t take much interest.” - P7

This suggests that institutional inertia and resistance to new practices acted as barriers, particularly in environments where traditional teaching methods are deeply entrenched.

4. Challenges for older teachers in adoption of technology

Several principals observed that older teachers were more comfortable with traditional methods and often resisted new digital practices.

“Our traditional teachers who are close to retirement can’t accept change and stick to traditional teaching methods hence show resistance.” - P6

“It was a big change for everyone, it was difficult for them. Now, if all of them were young, or if there was a very smart lot in the college, it would have been very easy for them. But the miracle happens when you come at this age and take the challenges on.” - P12

Teachers also acknowledged these generational differences in adaptability.

“Obviously, younger colleagues learn faster. But I work with colleagues who are close to retirement, so it’s harder for us. We learned from each other and from our NIETE coaches. We told them our problems.” - P1

“My older colleagues, who aren’t as tech-savvy, have issues. For example, some completed their tasks but forgot to click the ‘Complete’ button, and NIETE didn’t register it.” - P4

5. Some teachers did not take the intervention seriously because they believed it was temporary

One principal noted that teachers do not take it seriously due to the temporary nature of the project,

“Because initially, the teachers believed that a new project had been launched and it would go away eventually, so they took it lightly...because a lot of the time, many projects are started and then ended abruptly. So, sustainability and incentive are important for NIETE. Then, interest and involvement would be great” - P7

This perception of impermanence weakens motivation and leads teachers to deprioritize engagement with the program. This aligns with similar views that the representative from MoFE&PT shared regarding the sustainability of NIETE and steps to be taken to ensure the impact is long-term ([section 4.2.2](#) bullet point number 20 provides detail on this).

4.1.1.2 Experiences with NIETE coaches

Section summary

Both teachers and principals reported mixed experiences with the NIETE coaches. Many teachers appreciated the coaches’ supportive approach, constructive feedback, and respectful communication, noting that their guidance helped improve teaching practices and classroom confidence. Principals also acknowledged that coaching enhanced teacher performance and facilitated smoother implementation, with several noting that feedback sessions encouraged professional growth. However, both teachers and principals raised concerns about inconsistencies in feedback quality, the limited experience of some young coaches, and occasional insensitivity to classroom contexts. In some cases, overly critical or inexperienced coaching led to friction, highlighting the need for more qualified and context-aware coaches in the future.

Teachers had a mix of negative and positive experiences when engaging with the NIETE coaches

Teacher engagement with coaches played a significant role in shaping the implementation and uptake of the NIETE program. Interview data revealed a mix of positive and negative experiences, with most teachers acknowledging the value of having continuous support, while also highlighting areas for

improvement in the coaching model.

Several teachers shared that coaches were supportive, helping teachers stay on track and navigate challenges in the classroom. Coaches were seen as approachable and responsive, often providing timely and constructive feedback. A teacher shared,

“Whenever we taught, she always gave constructive feedback. She shared our areas of improvement in a kind and encouraging manner. The most beneficial aspect was the feedback she provided; how to groom ourselves and improve.” - P3

“If we faced difficulty, they would help and provide feedback. If we weren’t performing well, they guided us back on track.” - P3

Teachers also appreciated the private and respectful manner in which feedback was delivered, especially during initial classroom observations. A teacher noted,

“At first, we felt pressure. But the coaches told us to teach normally. They gave feedback privately, never publicly. That was positive. They coordinate well (with teachers).” - P1

Some teachers felt that the feedback provided lacked nuance or was overly critical. In certain cases, they expressed concern that individual teaching contexts were not considered in the feedback process.

A teacher explained,

“They mostly observed and gave feedback. Sometimes they were critical, which I didn’t appreciate. Constructive feedback is fine, but negative criticism is not helpful. I skipped a part of a lesson because it wasn’t suitable for my students’ level, but the coach didn’t acknowledge that.” - P4

Some teachers reported inconsistencies in coaching quality across visits and a lack of personalized feedback in some cases.

“In the beginning, we had a coach who wasn’t as experienced. But later on, the coaches we got were very helpful.” - P2

“Initially, I hesitated to give feedback because I didn’t understand their backend problems. I felt that if coaches are hired to improve education, they should have an educational background.” - P2

Highlighting that coaches initially lacked relevant expertise or the ability to fully understand classroom realities.

Principals had a mix of experiences when engaging with the NIETE coaches which were not uniform in nature

A large majority of principals acknowledged that coaches were helpful, reflecting the perceived value of having ongoing instructional support.

“In the beginning, the program was moving too fast and many teachers also faced a lot of issues. But coaches helped a great deal in the transition.” - P11

“Coaches would debrief the teachers about the issues they observed, and then they would also debrief us and keep us up to date. Then we would work together to fix the issues.” - P8

More than half of the principals emphasized that feedback from the coaches improved teachers.

“Teacher performance improved a great deal after the one on one feedback sessions,” - P11

Despite the intended goal of ongoing instructional support, some principals reported significant limitations in the way coaching was carried out.

“We were not satisfied with them (coaches)” - P8

Principals also felt that coaches did not give valid feedback, she narrated,

“Like our last coach Tabina, observed Asia who teaches grade 4, and gave feedback on time management and that the student-teacher interaction was not efficient. Based on this, the two of them had a clash. Then I sat them down and made them talk it out.” - P8

This highlights how feedback that lacks sensitivity or contextual understanding can create tension rather than improvement, requiring intervention from school leadership to manage conflicts.

Echoing the sentiment several teachers shared, a principal raised concerns that inexperienced coaches were hired, saying,

“The program that I found very problematic was that the coaches here have hired fresh male students. If they were already teachers, they would have been aware of the school environment. They would have had at least the experience of working there. They would have been able to implement it better.” - P7

4.1.1.3 NIETE’s Impact on Teacher Attitude and Behaviour in Classroom

Section Summary

This section highlights NIETE’s positive impact on teacher attitude, noting that teachers felt more relaxed, confident, and better prepared. The program's monitoring tools increased accountability and responsibility, leading to enhanced communication and improved student-teacher relationships and engagement in the classroom.

A few of the principals noted that the NIETE intervention led to improved confidence among teachers,

“Earlier, the teachers who were reluctant to teach now are excited to teach,” - P8

“When teachers learn something new they gain confidence. Initially there is hesitation but with time they learnt and automatically gained confidence” - P8

Suggesting that regular engagement with structured content and coaching interactions enhanced teachers’ interpersonal skills and comfort in expressing themselves within the school environment.

In terms of behavioral shifts, a few of the principals stated that classroom observations facilitated by NIETE through coaching sessions increased accountability among teachers, while a few said there was a visible sense of responsibility inculcated among teachers.

“Teachers worry to not mess up their Annual Confidential Report (ACR) and performance and they have a sense of accountability. We inculcate a sense of responsibility in them and now they know they need to improve because they are being observed.” - P6

A principal observed an improvement in communication after the NIETE intervention,

“With these new things, the teachers have become more alert. They have improved their interaction (with students). They have improved their communication level (with students). So, Alhamdulillah, things are going very well.” - P12

Nearly one-third of principals observed that student-teacher relationships improved,

“Before this, teacher-student interaction was zero. One or two students would be picked to lead while the teacher sat. Now, the teacher is bound by the lesson plan to do activities for every student. This has improved both student engagement and teacher involvement.” - P10

4.1.1.4 Impact on Student Learning and Engagement

Section Summary

This section reviews the mixed impact of NIETE on student learning and engagement. While many reported significant positives, including an increase in student engagement, participation, and interest driven by the shift from lecture-based to interactive, activity-based lessons, some negative experiences were also noted. Key improvements cited were better conceptual clarity, enhanced reading and phonics skills, and a reduction in failure rates. However, a lack of uniformity in results from different schools was observed, as some teachers found the NIETE content too basic and less beneficial for advanced students, with a few principals expressing skepticism about measurable short-term improvements and concerns about the long-term retention of learning.

Teachers and principals report both positive and negative experiences in terms of on student learning and engagement highlighting a lack of uniformity

Teachers shared that student engagement and participation increased following the introduction of NIETE. The shift from traditional lecture-based teaching to activity-based and structured lessons made learning more interactive and enjoyable for students, particularly students in early grades.

“Yes, due to activities. Students like doing things, not just reading from books. Especially students in early grades. They resist book learning.” - P1

“Student engagement has increased because we’ve moved away from traditional teaching methods. We now conduct activities that generate student interest.” - P2

One of the principals mentioned,

“Students really enjoy and take interest in the audio and visual aids in class - we have LEDs now - so students are also keen when classroom observations are happening and even teachers come prepared so classroom management has improved a lot.” (While it should be noted that not all schools had LEDs).

Teachers also observed improvements in student behavior and confidence.

“Their communication and behavior have improved. They are learning at their own pace, but overall, their thinking, speaking, and interaction have developed.” - P3

Several teachers noted a positive shift toward peer learning within classrooms. Group activities built into the lesson plans increased student interest and helped teachers.

“Previously, we used traditional methods, mostly lectures and occasional activities. Now, there are both group and individual activities. Students take great interest in these, and it has helped teachers immensely.” - P2

A teacher also highlighted the increase in peer learning,

“Students enjoy working in groups, helping one another, and guiding peers who are confused.” - P4

Principals shared that these activities promote critical thinking, emphasising,

“NIETE also includes many activities that promote brainstorming and critical thinking. Earlier, children never asked questions. Now they do, and that brings a lot of positive change” - P10

Many teachers and principals reported improvements in student academic performance, particularly in early-grade foundational concepts. Several cited a notable reduction in failure rates and better conceptual understanding.

“I’m very happy to share that our failure rate (after NIETE’s implementation) has decreased significantly. In our last session, only three students from the primary section failed. Otherwise, the results were excellent.” - P2

“The children have improved in terms of phonics. They now know about digraphs, blends, and related concepts,” - P5

“Earlier, students had no concept of what they were learning. They memorized and repeated like parrots. Now, even if they can't write fluently, they understand the concept.” - P10

“Students' reading skills have definitely improved. The use of phonetics in English especially has helped students. I think reading skills are the major improvement.” - P6

“The results have improved significantly, the overall percentage and GPA are much higher.” - P9

An increase in confidence, participation and attendance was also observed,

“Our students have become more confident, especially the male students. Since most of my staff is female, the male students would often come directly to me. Now, they're much more open and comfortable. They freely discuss things, even academic topics.” - P9

“Even if a student is on leave, the lesson plan ensures that students don't feel like they've missed anything, they can easily catch up on what was covered the previous day. Because of this, student attendance has improved. They no longer find the lessons boring or feel disconnected.” - P9

Additionally, a principal noted a sense of responsibility inculcated in the students, and reported,

“Students were also made to realise that our government has hired another institution for our improvement so we need to also change our attitudes so we also need to take it seriously in order for outcomes to improve.” - P6

Despite reported improvements, some respondents noted that NIETE's standardized instructional model may not adequately cater to high-performing or more advanced student groups. As one teacher explained,

“NIETE is not that beneficial for us. Our children are more advanced... If we are given a free hand to teach them, they can perform better than by sticking with a syllabus that groups all levels together.” - P5

There were also concerns about retention of learning, with some teachers observing that students were able to grasp concepts during class but struggled to retain them over time. A few principals expressed low levels of satisfaction with the impact of the NIETE intervention, raising concerns about its effectiveness and relevance.

“I think there has not been much difference since the NIETE app,” - P8

Signaling skepticism about whether the program brought about any measurable improvements in teaching or student learning. The same principal noted that NIETE is basic and not useful for students already performing well, suggesting that the intervention may have been too generalized, thereby failing to cater to high-performing students.

“I found that too simple a syllabus was assigned. It felt like it was a waste of time as our students are way advanced in terms of their (NIETE) slides. Our community is also educated, thankfully, so the literacy rate is high and parents are involved. So NIETE’s program was low-level for our students who are good students.” - P8

4.1.1.5 Impact on Parental Engagement

Section Summary

This section finds that NIETE had no significant impact on parental engagement, and it remained consistently low, especially in rural areas. Teachers noted a disconnect between NIETE’s learning approach and parents’ expectations, as many parents equated learning with visible written work rather than conceptual understanding. Additionally, parents expressed skepticism about NIETE’s assessment methods, viewing them as too easy and insufficient to prepare students for exams.

NIETE did not have an significant impact on parental engagement with parental concerns over assessments and lesson plan structure/content

Teachers consistently noted that parental engagement remained limited, particularly in rural communities. Communication gaps persisted, and parents were generally not responsive to updates about classroom learning or assessment methods. As a teacher shared,

“NIETE is doing well on its own, but it hasn’t increased parental participation. It’s still zero... I once texted a parent, and the message wasn’t even read for 2–3 days.” - P4

There was also a noticeable misalignment between NIETE’s pedagogy and parental expectations, especially around book-based learning and visible written work. Teachers reported that parents were more concerned with notebook content than actual student understanding.

“Parents care more about written work than learning. If the notebook is empty, they think nothing is being taught,” - P1

Additionally, NIETE’s assessment tools were met with skepticism by some parents, who felt that exams were too easy and did not adequately prepare students for academic pressure.

“Most students passed with flying colors... Parents complained that the papers were too easy. They were worried that the children won’t be able to handle pressure in the future,” -P5

“Because the parents ask for summer vacation homework as well.” - P8

4.1.1.6 Role of Principals in the NIETE Intervention

Section Summary

This section highlights the principal's crucial role as an active facilitator in the NIETE intervention, providing direct technical and pedagogical support to teachers and acting as liaisons with coaches. While they actively monitored implementation through classroom observations, their relationship with the NIETE team was mixed, often marked by communication gaps, a lack of feedback channels, and a feeling of exclusion from key processes.

Principal’s role in facilitating teachers

- **Paired teachers to promote peer learning**

Some of our teachers were not very skilled so we attached them to teachers with better skills to learn from each other and improve.” - P6

- **Aided teachers struggling with lessons plans**

“I would aid the teachers with the lesson plans because they would come to me to discuss it.” -

P8

- **Helped teachers access internet at any time**

“I helped them in many ways, especially by providing access to the internet. I tried to make sure they could get online whenever they needed. If I could use my mobile phone to help, I let them use it. I’d say, ‘You can use my internet.’ For example, if someone didn’t have a phone, their battery was dead, or there was no electricity, I offered mine.” - P9

“Teachers’ internet issues were resolved by us. We have three blocks here and we made sure that internet connection was made available there.” - P6

- **Assigned a focal person to train others**

“We facilitated the process. We sent the focal person to training sessions, even if it meant missing classes. Then that person trained others ,showing videos, explaining the approach, and how it benefits everyone. We acted as facilitators.” - P10

“The IT specialist teacher was requested by us to be our focal person because initially our performance was negative on several indicators and we started from there and then made the teachers realise the importance of this program and its improvement for them in the long term.”

- P6

- **Enforced smartphone adoption**

“Some of our teachers did not have android smartphones so we first motivated them and then later we enforced one to get them.” - P6

Principal’s role in facilitating the coach-teacher relationship

Over half of the principals reported that they interacted with the coaches to ease communication, highlighting their role in bridging potential gaps between external coaches and school staff. One of them said,

“We always meet coaches when they visit us for classroom observations and they do talk to us about the teachers' performance. For example we discussed a few teachers who were not working well or some who were transferred from another school. We also coordinate with them via WhatsApp.” - P6

Similarly, almost half of the principals said they facilitated teachers in their coaching participation, “*I have given my teachers a lot of interaction with them (NIETE). When their observation is complete, our coordinator or officer from NIETE, they sit in my room and discuss” - P5*

“This is the role of Head, that they facilitate. We facilitate the interaction with the teachers. We monitor the implementation process. We try to avoid gaps and loopholes.” - P7

In some cases, principals went beyond coordination and participated directly.

“I listen to their discussions. So I have felt such a difference that they sit there and guide them.” - P12

Principals monitored the implementation of the NIETE intervention

Over half of the principals reported that they participated in classroom observations, one of them shared,

“The evaluators were observing first themselves but later we asked them if we can also observe, they said we could by following a certain code of ethics so then I did sit in classrooms and observed all the teachers in my school. I wanted to observe the teaching methodologies and strengths and weaknesses that can be worked on.” - P6

Principals relationship with the NIETE team

The relationship between school principals and the NIETE team appeared to be mixed, reflecting both appreciation for the intervention and concerns about communication gaps and exclusion from key processes.

“When I looked at this program's several different dimensions and aspects we focused more on it and now we are improving,” adding “I have told so many points, the student is alerted, teacher is alerted, observations and monitoring happened, lesson planning and modules were made, innovation came, is this less of an opportunity?” - P12

However, these positive experiences were not universal. Another principal (P7) expressed concern that NIETE was not keeping principals in the loop, indicating a lack of consistent information-sharing or consultation with school leadership.

“So, from their side, I feel that the team of NIETE has been a bit inactive in taking the principal along.”

- P7

“There was not an opportunity. Since you are here, I am telling you. Because there was no platform for interaction. The coaches would come, we would facilitate them. But it was not a relationship like with Teach for Pakistan, whose teachers stay in touch.” - P7

The lack of interaction with NIETE staff, as mentioned by the principal, draws attention to a broader issue of limited relational engagement between the program designers and the school leaders.

Accessibility issues also surfaced, with one principal noting the lack of access by the principals to the NIETE app,

“We often rely on what the teachers tell us, but without seeing it ourselves, we don’t get the full picture.”

- P9

4.2.2 Representative at MoFE&PT’s perspective

4.2.2.1 NIETE Intervention

Section Summary

The MoFE&PT representative described NIETE as a first-of-its-kind teacher training model that moved beyond the traditional cascade approach, enabling 100% teacher participation through digital access and in-person coaching. Unlike previous costly programs with limited implementation, NIETE combined digital training, real-time classroom monitoring, and feedback mechanisms to strengthen accountability. Nearly 3,000 teachers were observed and categorized for targeted support. The representative also noted that features like lesson plans and the exam generator saved teachers time and improved classroom focus, making NIETE a cost-effective and scalable model for teacher development.

NIETE is distinct and unlike any government-led teacher training model

The MoFE&PT representative described NIETE as a unique first of its kind training model and a clear departure from previous government-run teacher training programs, which traditionally relied on the cascade model of professional development.³

³ The *cascade model* is a step-by-step training approach where a small number of master trainers are trained and subsequently responsible for training other teachers, often in multiple layers. While this approach has some merits, it is unable to reach the full teaching workforce or ensure the consistent quality of training delivery.

“We were always working on the cascade model... first the master trainer will be trained and then he will impart training to all the teachers. Obviously, we have a big number of teachers. You can't do it at scale, 100%, in-person, face-to-face, everyone can't do it.” - P13

Furthermore, they reflected on past efforts with high-profile and expensive training programs, including collaborations with international institutions. Despite these investments, the actual implementation of learning from these training sessions remained extremely limited. As stated by them,

“We have also done very expensive training... from Cambridge... from the American Board of Teacher Certification, (ABTC). We have done training of more than 800 teachers. When it comes to the implementation, you will be surprised that it was only 6% (teachers who implemented).” - P13

Additionally, digital delivery models reduced costs significantly,

“There is stationery, refreshments. A lot of costs minus from this. From imparting digital training” - P13

NIETE enhanced accountability through classroom monitoring and real time feedback

A critical weakness of previous training initiatives, as noted by the representative, was the absence of monitoring systems to verify whether teachers implemented new pedagogical skills in the classroom. In the past, there were no mechanisms to ensure accountability after training sessions, nor to assess ongoing performance or provide feedback for improvement.

“Who will ensure how much the teacher has learned, how much he is practicing in the field, how much he is doing practically — this component was always missing.” The representative added that, *“Principals used to say: ‘You trained the teachers for a week, you did it for two weeks. Whether they are implementing it in the classroom or not — who will monitor it, who will ensure it?’” - P13*

The representative emphasized that NIETE’s model of continuous observation and coaching created accountability structures that had never existed before within government-led training programs.

“The benefit of this was that we started getting feedback on academic monitoring, classroom observation, their delivery... So, this is different from your in-person teacher training model. It has improved.” - P13

Moreover, under the NIETE program, MoFE&PT was able to successfully conduct classroom observations for nearly 3,000 teachers, ensuring that performance was not only assessed but categorized for further support.

“We have done the classroom observation of around 3000 teachers... categorized them into category A, B, and C. This has never happened before in any training.” “Teachers are taking training and then in the classroom, real-time physical observation of the entire lesson is being done.” - P13

NIETE combined the digital resources on the App, coaching, and accountability mechanism for greater impact

The representative highlighted NIETE's combined digital training and follow-up support was essential in achieving meaningful impact.

“For impact. Not only the app. Not only the digital content. Clubbed with the presence of coaches in the field. That was important.”- P13

This system of monitoring and coaching addressed a long-standing issue in Pakistan’s education sector which was the lack of personal accountability among teachers and the absence of platforms to seek timely guidance or problem-solving support.

“As a nation... we are not so responsible. The thing that has been delivered... you have to deliver it forward as well. It is like trust. You have to deliver it.” - P13

“It’s not only about accountability. You need support as well. The teacher becomes blank sometimes about what to do in a certain situation. So there should be a platform where he raises his problem and he can get a possible solution.”- P13

NIETE reached 100% teachers

The representative underscored NIETE’s achievement in reaching, observing, and supporting 100% of teachers, which provided not only accountability but better visibility into teaching quality and student learning outcomes.

“We reached out to 100% teachers... provided support to 100% teachers... observed 100% of teachers, how well they are doing. We also gauged the student’s learning outcomes, what is better in that.” The rep

further added that *“First of all, we can involve 100% teachers in this. This is also a very big element in this. Previously, we used to call 30 teachers for a particular module... But in this, we have enrolled 100% teachers.”* - P13

4.2.2.2 Role of FDE in NIETE Intervention’s Implementation

Section Summary

FDE played a central role in ensuring NIETE’s successful implementation through active collaboration, feedback, and oversight. Close coordination between FDE and NIETE enabled timely troubleshooting of technical issues and strong alignment between field realities and program goals. FDE also ensured accountability by monitoring teacher performance through coach reports and maintaining responsive communication channels. Additionally, FDE emphasized the importance of third-party monitoring and evaluation to validate NIETE’s impact and inform future policy decisions.

Continuous feedback for improving the CPD content

Gaps and deficiencies in the content were regularly identified by FDE’s academic team and communicated to Taleemabad for correction and improvement.

“The content of the teacher's training... the deficiencies were being conveyed... We kept correcting it mid-course. We kept improving it from time to time with help from NIETE’s team.”- P13

Collaborative approach

“If NIETE’s team did not have a very close collaboration with us, we could have never accomplished this. The way everyone participated and fulfilled their responsibilities, that is the reason why this was successful...The follow-ups have been great... If a teacher is underperforming in the opinion of a coach, I will get to know about it.” - P13

Proactive identification and resolution of technical issues

The FDE’s academic teams maintained active communication channels with NIETE, ensuring that problems were flagged promptly and addressed efficiently,

“If the app is not running, or there is a problem in the app, or the lessons are not updated... We convey to NIETE too... The connection was built because of that. There were definitely problems and challenges. But it was resolved immediately.”- P13

Third-Party monitoring and evaluation to validate impact

FDE recognized the importance of third-party monitoring and evaluation to objectively assess the impact of NIETE on student learning outcomes for future policy decisions on the program's effectiveness.

“Assessment of children's learning levels. By a third party... We will get a clear picture which will help in policy decisions.” Adding that, “Unofficially we have been told there has been a lot of improvement... but when a third party validates it, we will know.”- P13

4.2.2.3 Gaps and Limitations in the Current NIETE Program

Section Summary

Several structural and contextual limitations were identified. The absence of an in-person or hybrid training component limited hands-on learning, particularly for older and less tech-savvy teachers. Persistent internet connectivity issues hindered real-time lesson delivery. Teachers and officials noted that lesson plans followed a one-size-fits-all model, lacking flexibility to address urban–rural or student-level differences. Limited digital literacy among older teachers and the time required for all teachers to adapt to new technology further slowed implementation. Additionally, NIETE's execution under the PSDP framework created compressed timelines and pressure for quick results, leaving little room for gradual integration. Finally, some resistance arose from senior teachers who were reluctant to accept feedback from younger, less experienced coaches, affecting the effectiveness of coaching and capacity-building efforts.

Absence of the in-person training component

The representative highlighted that while digital training allowed NIETE to reach all teachers, the absence of a structured in-person or hybrid training model left gaps in teacher capacity-building. Many teachers, especially older and less tech-savvy ones, struggled to adopt the program.

“This training should have been done in a hybrid mode... A lot of teachers need support in the physical in-person training session... That component was negligible.”- P13

Internet connectivity challenges

Persistent connectivity issues, particularly in far-flung schools, made real-time implementation of lesson plans difficult. Teachers often lacked reliable internet access, which undermined the digital delivery

model. This corresponds directly to the same issue pointed out by teachers and principals in [section 4.1.1](#).

“Connectivity challenges are very serious in far-flung areas... It is difficult for teachers to open the lesson in real-time.” “We rectified it so they could download it one day before.”- P13

Lesson Plans are perceived to be one size fit all that do not account for differences between rural and urban students

“Teachers should have their own creativity... One size cannot fit all....urban and rural children are different... delivering the same lesson won't be equally effective.”

- P13

This echoes similar concerns highlighted by teachers and principals in [section 4.1.1](#).

Lack of comparable digital teacher training content in Pakistan

There is no existing body of comparable digital content for teacher training in Pakistan, making it difficult for the government to benchmark NIETE's progress or quality against established norms.

“Most teacher training in the provinces is happening in-person... You don't have any standards to make a comparison.”- P13

Limited digital literacy among older teachers

A significant challenge in implementation was the limited digital literacy among older teachers, who lacked familiarity with apps and digital tools which echoes the concerns highlighted by teachers and principals ([section 4.1.1](#)).

“Teachers were not that tech-savvy... Coaches had to download the app on their phones and show them how to use it.....in this digital era, our teachers are not equipped enough even to use an app.” - P13

Time required for teachers to familiarize with technology

Even when teachers were open to change, gaining confidence with technology took time. This slowed down implementation and required additional support.

“Becoming familiar with technology took time... These barriers had to be broken.”- P13

Compressed timelines due to PSDP project constraints

Because NIETE was implemented under a PSDP funding model (details on PSDP are in [section 1.1](#)), it faced significant pressure to show short-term results within a single year, rather than allowing for gradual and sustainable rollout over multiple years.

“These projects should be developed at the institutional level. Instead of the PSDP project. In PSDP. You have very limited time. You just have to do it quickly to show the results. You have to justify your budget. Although this (NIETE) was a drastic change....it should have taken three to four years.” - P13

Resistance to young and inexperienced coaches

Some teachers, especially senior ones, struggled to accept feedback from younger, less experienced coaches. This generational gap created initial resistance and posed a barrier to effective capacity-building (similar apprehensions were highlighted by teachers and principals in [section 4.1.1](#))

“Teachers thought: These young children, how can they teach us how to teach? We’ve been doing this for years...acceptance was a big challenge.” - P13

4.3.3 Taleemabad’s Perspectives

Section Summary

We interviewed a male and female NIETE coach from Taleemabad and one member of the senior management. We asked them about their experiences with the program and suggestions to make it better. Both coaches and the senior management member highlighted several implementation challenges that shaped the NIETE experience. Coaches noted that many were young and lacked classroom experience, which initially led to resistance from older teachers especially in rural areas who questioned their credibility. Teacher reluctance to adopt technology and unwelcoming attitudes from some principals further complicated early engagement. Persistent internet connectivity issues emerged as the most significant structural barrier, limiting teachers’ ability to use the app effectively despite management’s efforts to distribute data packages transparently. Additionally, frequent rotation of coaches between schools disrupted relationship-building and continuity of support, while recurring technical glitches in the NIETE app such as crashes and update failures undermined user confidence. Together, these issues reveal that while the coaching model held promise, operational and infrastructural constraints weakened its overall effectiveness.

Coaches were seen as young and inexperienced

At the start of the program, some teachers expressed doubts about being evaluated by younger or less experienced coaches (similar concerns have been shared by teachers, principals and the representative from MOFE&PT in the sections [4.1.1](#) and [4.2.2](#) above).

“Initially, at the beginning of the program, there was a major concern that these very, you know, young people are here to teach... the ones who have an education background and experience, they can better, you know, deal with all these issues.”

The coach recounted an incident when shadowing a colleague who was new and inexperienced:

“I went to the school and all the teachers attacked her. She was unable to tackle the answers of all those, and I was the one who stepped forward and dealt with all those teachers... You have to be an expert in how to communicate with them. So, they should get some training.”

These reflections highlight the need for more structured preparation before deployment.

Another coach shared something similar in their account regarding the coaches being inexperienced and facing difficulties because of teacher attitudes, particularly in rural areas, where there was initial skepticism about the coaches’ capacity and intentions.

“Teachers were like, especially I will talk about rural, teachers were like, what will these young kids teach us? They have recently studied something (graduated) and are teaching us. So, those things are negative.”

Teachers initially resisted adopting NIETE

Teacher attitudes and resistance, especially in rural contexts, also shaped the coaching experience. According to the coach,

“It was very difficult to communicate with them. They were not willing to use technology. They didn’t use apps. They used to always give excuses that we don’t have smartphones... Mostly, the teachers of my school were near to retirement. They were done with everything.”

“Even when I used to go to school a couple of times, the principal used to say... you guys come every other day. So, it was like an unhappy and unwelcoming attitude.”

While resistance softened over time, the coach described rural schools as presenting more challenges than urban ones due to differences in culture, age profile, and openness to change.

Internet connectivity was the major barrier in program delivery and implementation

Structural and resource-related issues also constrained program delivery. Internet connectivity was described as a persistent barrier (echoing what was shared by all of the other stakeholders interviewed):

“It was about the internet. Honestly, the teachers still have the same issues... we collected all the data of each and every teacher... we forwarded all the details and the authorities, they rejected it.”

Despite coaches attempting to address these gaps, limitations in infrastructure and support from authorities meant that many of these problems remained unresolved.

“Internet facilities are huge, especially in rural areas ... a lot of teachers go home, listen to plans from home, then take screenshots. There was no download option in our app before. Then they would take out the screenshots, make notes, and then come, those who were going to do it. Those who were not going to do it, they would say that there is no internet.”

At the management level, NIETE leadership acknowledged these problems but emphasized the complexity of ensuring systematic and accountable provision of internet packages.

“There are government stakeholders that are also involved to ensure that we follow the process in which all teachers are provided with the internet. We are still committed to that. Hopefully, we will be doing it. But there are some processes that we need to ensure that each and every deserving teacher gets the internet. By deserving, I mean we are also held accountable for each and every penny that's given.”

They elaborated that while internet bundles were distributed initially, scaling up revealed administrative and technical hurdles.

“When you're dispersing the internet at a large scale, there is some sort of a system that needs to be established. Otherwise, doing this manually is not scalable... For example, their numbers were on Jazz, but they were converted to different connections. So, once you look at the numbers, the internet package which was subscribed was on Jazz, for example, or Mobilink. But it was bounced back because the number was actually on Ufone or some other network....we are accountable to the government for that.

If we provide the internet.....for a teacher to give that internet to their son or brother or sister, that's not possible.”

Rotating coaches between schools undermines relationship building with school staff

A coach also identified operational practices within NIETE that undermined relationship-building with teachers, particularly the policy of rotating coaches between schools. As they explained, “

Yes, one thing I would highlight is that here, there is a shuffling of the coaches. Now, if I have been in a school for 3–4 months, I have a good understanding of all the teachers, how the teachers are, I get to know. Then, there is the shuffling of coaches.”

This, they emphasized, weakened trust and continuity:

“Because, if you are going to a school and I tell you that I will go from now onward, then your understanding of teachers and the trust you built will be gone then it will take the same time to build again in a new school. So, I would like to change this.”

Technical problems with the NIETE App

Finally, technical problems with the app were highlighted as a recurring issue. The coach explained,

“Sometimes, our app crashes... That means if there is an update, it is not coming. [Teachers say] my lesson plans are not coming. So, log out and log in, uninstall and install. So, if this thing gets a little better, then we can do a little more. I mean that kind of trust builds up a little more.”

4.4.4 Feedback from Participants to Improve the Program

The following section provides an overview of the feedback collected from teachers, principals, representative from FDE and representatives from Taleemabad’s administration to improve the functionality, usability, and effectiveness of the NIETE app and its resources along with the overall program’s implementation and long-term sustainability. The following are the recommendations provided by the stakeholders interviewed.

4.4.4.1 Feedback to Improve the NIETE App and the Resources on it

1. Improve App's sound quality and volume

"The sound (of videos) should be louder." - P5

2. Increase flexibility in modifying the lesson plans and allow creativity

Teachers emphasized that lesson plans should allow for flexibility, enabling teachers to adapt content based on students' needs and their professional judgment. Strict adherence to scripted lessons was seen as limiting and impractical in diverse classrooms.

"Lesson plans should be flexible; teachers should be trusted to adapt them." - P4

A principal emphasized the need to make lesson plans more flexible and allow room for creativity. This feedback signals concern worded as,

"The NIETE lesson plans are slower in comparison to our own. They should be a little more flexible e.g. allow some flexibility to teachers to shift between lessons according to their own pace and methods" - P11

So, the scripted nature of NIETE's content, while useful for consistency, may limit teachers' ability to adapt lessons to their students' interests, learning styles, or classroom dynamics. Incorporating flexibility would allow teachers to blend structure with innovation, thereby improving engagement and contextual relevance.

3. Align Content with student learning levels

Teachers recommended that the content on the app be better aligned with student learning levels, similar to practices in the FLN (Foundational Learning and Numeracy) program.

"I would just recommend matching content to student skill levels, like in FLN. That's good practice." -

P4

4.4.4.2 Feedback to Improve NIETE Intervention's Implementation

4. Strengthen IT and infrastructure support at the school level

With almost all the teachers and principals citing internet connectivity as one of the greatest

challenges to the program's effective implementation (discussed in [section 4.1.1](#)), the need for schools to provide reliable IT infrastructure and internet access to support the effective use of the NIETE App was one of the top recommendations.

“Schools must provide support, data or Wi-Fi... This is daily-use content, not one-time. You use it in multiple classes, each for 40 minutes. It adds up.” - P1

5. Provide more comprehensive and gradual training for teachers

Teachers recommended that the implementation of NIETE should be phased in more gradually, with comprehensive training provided at each stage. Training should cover not only content but also the use of the app and website, with additional support for teachers unfamiliar with digital tools.

“If everything had been introduced step-by-step, we would've been more prepared... There should've been training on how to use the website, how to learn the app.”

“I'm experienced in teaching, but not in IT. For IT, I need help from my colleagues, family, and children.” - P1

Moreover, almost half of the principals recommended that teachers should be trained by coaches to use the app and fix issues themselves.

“Teachers should have enough training so that they are able to understand and use all the resources on the App” - P6

Lastly, the representative from MoFE&PT said that a blended approach that integrates digital modules with periodic face-to-face engagement would be more effective for capacity building:

“digital content for a few days and then follow-up in-person, that will be much better.”- P13

6. Involve teachers in syllabus design

Teachers suggested that they should be included in syllabus and content design processes. They argued that those with direct experience teaching younger students are better positioned to align content with students' developmental needs.

*“Junior teachers must be included in syllabus design. They know how to build a foundation...
Big words are useless for small children. Your policy makers must consider that” - P1*

7. Materials should be provided for activities in lesson plans for students

One of the challenges highlighted by teachers was the budgetary constraints they faced when arranging the materials for the classroom activities as dictated by the NIETE scripted lesson plans. A teacher suggested that materials should be provided by the school or NIETE program to facilitate teachers in conducting those activities.

“We often spend out of our own pockets for classroom activities. If coaches say, ‘You haven’t done this activity,’ it’s not always our fault. We simply can’t afford it. The school or NIETE should provide those materials. We’re happy the students benefit, but we need support.” P4.

8. Include other subjects beyond the three currently offered as a part of the NIETE intervention

One principal recommended including other subjects in the program, pointing to a current limitation in NIETE’s subject coverage by stating the issue as,

“From the very beginning, parents were informed that only three subjects are being taught as part of this program; the rest are considered extra. Parents were not sure if they should send their children with other books or copies to class, and I advised them to send books and copies of all subjects so other subjects should be included.” - P9

9. Align traditional teaching methodologies with NIETE methodology

A few of the principals proposed a more deliberate effort to align traditional and scripted methodologies, highlighting the need for balance between long-standing teaching practices and NIETE’s structured approach.

“NIETE should be implemented as part of our routine and then we can go towards further improvement. Actually the traditional practices and methodologies have to be aligned with the NIETE program and that’s one of the challenges.” - P6

10. Include interactive resources in the program

A principal suggested that the program include resources that are interactive, because the current ones are basic. For this their thoughts were,

“They can be made better because they are too basic and preliminary. I don’t think it is interactive or hands-on. I did not find it to be that professional.” - P7

11. School principals should be included and engaged with more proactively by NIETE administration

Several principals emphasized the need for more consistent engagement between school leadership and NIETE administrators.

“Quarterly meetings should be held to assess the progress. When we discuss all of these things internally, only then will we be able to give a progress report to someone else. This wasn't a part of their implementation strategy, it should have been.” - P7

“We should have been in the loop and the principal should have been included in the meetings. If we had received feedback, we would have felt our engagement was more purposeful. The communication gap with the principals and institutions was significant,” - P7

It reinforced the importance of two-way dialogue in strengthening program ownership at the school level. Without recognizing principals as key stakeholders, administrative decisions risk becoming top-down, reducing contextual fit and long-term sustainability.

12. Awards and incentives for teachers can improve program uptake

Teacher motivation also emerged as a critical area of concern. One principal proposed providing teacher incentives, they gave the example,

“In the start, they gave each teacher an incentive, for their basic pay. If you give such honorary incentives, it would build competition. Like “Best Teacher - NIETE” if they knew they could achieve this title, they would work harder. In the start, the teachers made a lot of effort because the ministry gave many incentives. If this had been communicated, it would have facilitated the process” - P7

This highlights how recognition, both financial and symbolic, can drive teacher engagement, and suggests that clearer communication about such incentives could have sustained momentum and improved implementation.

13. Hiring experienced coaches

Addressing the issue of inexperienced coaches that was raised by all of the stakeholders interviewed, A principal recommended hiring experienced coaches,

“They should keep experienced people. A lot of things are missing, whether that’s due to lack of understanding or something else.” - P7

14. Strengthen monitoring and evaluation of the NIETE intervention

The recommendation to strengthen monitoring and evaluation by a principal to improve the program highlights a commitment to evidence-based refinement.

“There should be strict monitoring. We should be asked to give feedback based on our observations. If we think this project is progressing towards becoming an intermediate or large-scale platform, monitoring or evaluation officers of NIETE should have this data available already. They don't have a monitoring or evaluation officer.” - P7

15. Establishing standards for digital teacher training

The MoFE&PT’s representative pointed out that Pakistan currently lacks national standards for digital teacher training, making it difficult to benchmark NIETE’s materials or ensure quality across programs. Establishing such standards would help formalize digital education efforts.

“Digital training standards should be made... There should be a body to certify and approve digital teacher training content.” - P13

16. Establish a dedicated cadre of coaches

The MoFE&PT representative strongly recommended the creation of a dedicated cadre of coaches within the education department to ensure continuous monitoring and support for teachers. The presence of coaches in the field has proven essential for providing accountability, guidance, and practical support, significantly enhancing the impact of digital training.

“If a cadre of coaches is created in education departments... It’s not big. We have 4,000 teachers, and managing them with 50 coaches is hardly 0.25%. It has played a very important role, and it is necessary to sustain it.” - P13

“Even foreign training will not have the same impact as this kind of ongoing monitoring and support.” - P13

17. Categorize teachers based on performance and provide targeted support

The MoFE&PT representative proposed a tiered system for professional development, whereby teachers are categorized (A, B, or C) based on performance in observations and assessments.

- Category A teachers would continue with self-paced digital learning.
- Category B and C teachers would be required to attend in-person training sessions during summer vacations to receive more targeted, intensive support.

“Teachers of Category B and C... we will call them once and make them sit in front of us to try to remove their difficulties. After this, if performance doesn’t improve, then our concerns will be quite valid.” - P13

18. Expand the scope to include the entire educational workforce

Currently, NIETE’s focus has been limited to teachers. The MoFE&PT representative recommended that in the future the program should expand to include the broader educational workforce, such as curriculum developers, textbook writers, and head teachers , each of whom should have tailored training pathways. A systemic approach would ensure consistency in quality and alignment across the education system.

“The training is solely focused on the teachers. They should pay attention to the education system as a whole... curriculum developers, textbook writers, head teachers... The whole institution should exist with the goal to train every kind of educational workforce.” - P13

19. Sustainability through institutional integration

The representative noted that sustainability is a core goal embedded in the program’s design, with a view to transitioning from project-based implementation to permanent institutional integration.

“It needs to be sustained. We have made a model based on its sustainability. We have given it to

the Planning Commission. There are discussions on it. It will be finalized.” - P13

To ensure sustainability, a proposal (PC-1) has been submitted to the Planning Commission for approval. Once approved, NIETE would become a permanent part of FCE’s institutional structure, replacing the current project-based model.

“If the PC-1 is approved, it will be a permanent entity... FCE will take over it and run it. FCE has a human resource.” - P13

4.2 Findings from the Classroom Observations of Teachers Implementing the NIETE Lesson Plans

4.2.1 Instructional Structure and Lesson Fidelity

Each lesson was assessed for alignment to NIETE’s scripted lesson plan structure:

1. Opening (recap or warm-up)
2. Instructional core (explanation, modeling, guided practice)
3. Conclusion (student practice or review)

Table 4.2.1

Lesson	Grade	Opening Time	Core Instruction	Closing/W rap-Up	Structural notes
Urdu	4	2 min	14 min	2 min	Weak closing ⁴ , heavy on explanation ⁵

⁴ Weak closing means the lesson ended without a clear recap or assessment of learning, offering little opportunity for students to consolidate what they had learned.

⁵ Heavy on explanation refers to a teaching style dominated by teacher talk and content delivery, with limited student interaction or applied practice.

Math	4	3 min	20 min	3 min	Procedural ⁶ , teacher-heavy ⁷
Long and short vowel sounds of a, e, i, o, u	3	6 min	12 min	5 min	Well-balanced ⁸
Short and Long Vowel Sound of 'o'	3	10 min	20 min	4 min	Best-sequenced and most complete ⁹

Grade 3's English *The Short and Long Vowel Sound of 'o'* lesson exhibited the most cohesive and well-sequenced instructional arc among all four lessons observed. It began with an engaging warm-up chant that immediately activated prior phonemic knowledge and established a rhythmic, participatory tone. This was followed by a clearly structured core instructional segment where the teacher guided students through phoneme identification, sound blending, and word segmenting exercises. These tasks built progressively from simple recognition to application, allowing students to internalize the vowel concept both orally and visually. Crucially, the teacher maintained a brisk but supportive pace, checking comprehension regularly through choral response,¹⁰ cold calling, and peer modeling.¹¹¹² The lesson concluded with a well-executed differentiated activity phase, where students were divided into beginner, intermediate, and advanced groups and assigned tasks tailored to their phonics proficiency. This closing task reinforced the objective while offering individualized scaffolding¹³. Transitions between phases were seamless, with the teacher intentionally returning to the lesson's core objective - mastery of the

⁶ Procedural indicates that the lesson focused mainly on following fixed steps or routines rather than developing conceptual understanding.

⁷ Teacher-heavy means the teacher led most of the activity and discussion, while students played a largely passive role.

⁸ Well-balanced describes a lesson that effectively combined teacher input, student participation, and independent practice, maintaining good pacing across all stages.

⁹ Best-sequenced and most complete means the lesson had a clear beginning, middle, and end, with smooth transitions and comprehensive coverage of learning objectives.

¹⁰ Choral response means all students respond together in unison, out loud, to a teacher's prompt or question.

¹¹ Cold calling means the teacher selects students to answer questions without asking for volunteers first.

¹² Peer modeling refers to intentionally choosing a student who demonstrates correct pronunciation or reasoning to model it for others.

¹³ Individualised scaffolding means providing tailored support to students based on their current skill level and gradually reducing that support as they improve.

short and long ‘o’ sounds - before closure. The instructional coherence, multimodal delivery, and embedded differentiation made this the strongest pedagogical sequence of the four lessons.

In contrast, the *Math* lesson, though grounded in a clear conceptual aim - teaching subtraction and place value - suffered from a disproportionate emphasis on explanation over application. Of the approximately 26 minutes of active instructional time, nearly 20 minutes were dominated by teacher monologue, including step-by-step problem-solving on the board. While this conveyed procedural clarity, it offered limited space for students to engage meaningfully with the content. Choral responses were infrequent, student errors went unaddressed, and no manipulatives or representational tools were used to embody the CRA (Concrete-Representational-Abstract)¹⁴ approach. The final minutes of the lesson included a perfunctory recap, but lacked any structured practice or assessment of student understanding. As a result, the session appeared heavily instructional but minimally interactive.

The *Urdu* lesson followed a similar path as the *Math*, where the teacher introduced core concepts - the identification and construction of “marakab alfaz” (compound words) - in an informative manner, but failed to create opportunities for students to actively apply the learning. While flashcards and board-writing were used to highlight vocabulary, the bulk of the session involved teacher-led demonstrations and individual call-outs of pre-formed answers. There was no open-ended task, group-based construction, or writing activity that could allow students to generate their own compound words. Consequently, although the concept was thoroughly explained, the pedagogical arc lacked a concluding synthesis or student-led consolidation task, leaving understanding at the surface level rather than deeply embedded through practice.

4.2.2 Verbal Engagement and Student Participation

We analyzed both frequency and quality of student talk, refer to the table below:

Table 4.2.2.

Lesson	Grade	Student Talk Type	Engagement Level	Teaching Mode	Notes
Urdu	4	Prompted word	Low-Moderate	Individual call-outs	No peer dialogue or reasoning

¹⁴ CRA is a three-step teaching method that starts with hands-on materials, moves to visual representations, and ends with abstract symbols to build strong conceptual understanding in math.

		recognition			
Math	4	Numerical answers	Low	Choral response	Off-task behavior noted
Long and short vowel sounds of a, e, i, o, u	3	Choral blending, skywriting	Moderate	Teacher-led choral answers	Some individual answers
Short and Long Vowel Sound of 'o'	3	Group blending, segmenting, cold-calling	High	Peer response, group answers	Interactive and differentiated

The *Short and Long Vowel Sound of 'o'* phonics lesson demonstrated the highest degree of both quantity and diversity in student speech across all four observed lessons. The teacher employed a wide repertoire of engagement techniques - cold-calling, whole-group choral prompts¹⁵, and strategic peer modeling - to create a classroom environment where verbal participation was normalized and actively encouraged. Students were not merely repeating isolated sounds but were blending, segmenting¹⁶, and articulating full words with phonemic precision. Importantly, the lesson featured multiple opportunities for students to articulate the reasoning behind their phoneme identification, especially in the differentiated group tasks, where verbal instruction and self-correction occurred within and across peer groups. The session thus promoted not only vocal repetition but meaningful phonological reasoning¹⁷ moving beyond surface-level choral engagement to deeper oral processing.

On the other hand, the lesson *Long and short vowel sounds of a, e, i, o, u* included frequent choral responses, with students echoing the teacher's segmenting and blending drills.¹⁸ However, this lesson leaned heavily on repetition rather than comprehension. Student utterances were uniform, and there were fewer opportunities for elaboration. The teacher's pacing, though rhythmic and consistent, did not leave sufficient space for open-ended or exploratory speech. The engagement was broad but shallow: many students participated, but their contributions were tightly scripted.

¹⁵ Whole-group choral prompts are teacher cues that invite all students to respond together aloud.

¹⁶ Segmenting means breaking a word into its individual sounds (phonemes) to hear and identify each part clearly.

¹⁷ Phonological reasoning is the thinking process students use to understand and manipulate the sound structure of words.

¹⁸ Blending drills are structured exercises where students practice combining individual sounds (phonemes) into whole words.

In contrast, the *Math and Urdu* lessons struggled to sustain robust student engagement through speech. In the Maths lesson, a large proportion of classroom time was occupied by teacher explanation, resulting in students assuming a passive listening role. When students were invited to respond, their answers were typically monosyllabic (“yes,” “no,” “two,” “nine”) and rarely prompted follow-up questions or deeper probing. Notably, the teacher did not regularly ask students to explain their answers, nor were incorrect responses explored for learning potential. This created a compliance-based interaction model rather than a stimulating dialogue. However, the *Urdu* lesson did provide more instances of individual student participation than Math, particularly during the flashcard-based vocabulary segments. Nonetheless, the quality of this interaction was largely constrained. Students were often asked to repeat or identify compound words already displayed or read by the teacher, limiting scope for critical thinking. Most responses were guided - elicited through leading questions or pattern prompts and there were no open-ended opportunities for students to apply the concept independently. As a result, while student voices were more frequent than in the Math lesson, they were still not autonomous or conceptually rich.

Overall, the phonics lesson on the short and long ‘o’ sound set a clear benchmark for effective student engagement whereas the *Math and Urdu* lessons revealed a pressing need for strategies that allow student voices to shape the lesson’s progression rather than merely echo the teacher’s lead.

4.2.3 Visual, Kinesthetic, and Differentiation Strategies

Use of flashcards, board work, skywriting, and physical movement were reviewed alongside differentiation practices.

Table 4.2.3.

Lesson	Grade	Visual Aids Used	Kinesthetic Involvement	Differentiation Applied?	Notes
Urdu	4	Flashcards, Board	Clapping compound words	No	Minimal variation by ability
Math	4	Board only	None	No	Static teaching method
Long and short vowel	3	Phoneme cards,	Skywriting,	Partial	Strong use of

sounds of a, e, i, o, u		board	clapping		phonics strategy
Short and Long Vowel Sound of 'o'	3	Cards, board, group sheets	Skywriting, peer actions	Yes (by group level)	Aligned with synthetic phonics

The *Short and Long Vowel Sound of 'o'* lesson was the only observed session that formally incorporated differentiated instruction¹⁹ based on learner readiness. Students were visibly grouped into beginner, intermediate, and advanced cohorts, each of which received tailored phonics tasks through color-coded worksheets that aligned with their proficiency levels. This grouping ensured that students were neither over-challenged nor under-stimulated, allowing each to engage with the vowel sound at an appropriate pace. Beyond differentiation, the lesson was notably multi-modal. Instruction combined skywriting, blending games, peer modeling, and worksheet-based practice, activating auditory, visual, and kinesthetic channels of learning. Transitions between modalities were smooth and purpose-driven, reinforcing core learning objectives while maintaining student interest and energy.

The session on the five vowel sounds (a, e, i, o, u) similarly integrated multimodal elements especially skywriting²⁰, sound segmentation²¹, and choral articulation²² but did not differentiate tasks or group learners. All students performed the same activities regardless of readiness level, which, while effective for fluency-building, limited opportunities for individualized growth or challenge. Despite its energetic tone, the instructional design remained whole-class oriented, with minimal adaptation for varied learner profiles.

In comparison, the *Urdu* lesson made limited use of varied modalities. The teacher employed flashcards, clapping techniques, and brief oral drills to introduce the topic (Marakab Alfaz/compound words), but these were universally applied and lacked scaffolding for students at different comprehension levels.

¹⁹ Differentiated instruction means the teacher adapts teaching methods, materials, and tasks to meet students' diverse learning needs, abilities, and readiness levels.

²⁰ Skywriting means students trace letters or sounds in the air using large arm movements to reinforce muscle memory and phoneme-grapheme connections.

²¹ Sound segmentation refers to breaking a word into its individual sounds (phonemes) so students can identify and pronounce each component clearly.

²² Choral articulation means the whole class says or repeats sounds and words together aloud to build fluency, rhythm, and pronunciation accuracy.

There was no visible tailoring of content or method based on observed student ability, and the visual aids used - while engaging - were not integrated into extended practice tasks.

The *Math* lesson, meanwhile, remained confined to traditional instructional tools: the blackboard, verbal explanation, and rote numeric examples. No use of concrete materials, manipulatives, or physical movement was observed. The teacher relied on explaining subtraction and place value concepts through spoken instructions and board work, which disproportionately favored auditory learners while offering limited access for visual, kinesthetic, or lower-performing students. The absence of varied modalities made the lesson cognitively dense and physically static, reducing engagement and retention.

The vowel sound of ‘o’ lesson exemplified practice in inclusive pedagogy²³, offering flexible entry points for all learners. The remaining sessions - while showing occasional use of alternative modalities - did not structure these around differentiated learner needs, signaling an area of potential growth for future NIETE lesson design and teacher training.

4.2.4 Classroom Management and Flow

Table 4.2.4.

Lesson	Grade	Off-task Moments	Discipline Issues	Smooth Transitions?	Notes
Urdu	4	Mild noise, laughter	No major issue	Some abrupt ends	Students engaged but passive
Math	4	Noise, student chatting	Teacher continuously reasserts	Poor transition flow	Fatigue set in mid-way
Long and short vowel sounds of a, e, i, o, u	3	Minor noise, laughter	Managed quickly	Generally smooth	Some energy dips
Short and Long Vowel Sound of ‘o’	3	None notable	Well-managed	Seamless	Fully absorbed learners

²³ Inclusive pedagogy means teaching in ways that support all learners, regardless of ability or background.

Among the four observed lessons, only the Math lesson experienced sustained classroom control issues that visibly disrupted the instructional rhythm. Around the 18-minute mark, student attention declined notably. Several students began fidgeting, talking, or disengaging from the board-led instruction. The teacher was compelled to issue repeated reminders such as “sit properly” and “listen first,” suggesting a breakdown in proactive classroom routines. Crucially, there was no strategic intervention - such as a movement break, game, or attention-reset technique - to recover student focus. As a result, the lesson flow deteriorated and never fully regained its earlier coherence. The teacher continued the explanation phase, but with minimal student participation and growing signs of cognitive fatigue.

In contrast, the two English phonics lessons displayed markedly stronger behavior management and engagement strategies. The *Short and Long Vowel Sound of ‘o’* session was particularly well-managed, with transitions that felt purposeful and embedded in the lesson arc. Movement-based strategies like skywriting, clapping, and peer modeling were woven in just as students might begin to lose focus, helping to redirect energy back toward the task. Group activities were launched efficiently, and students remained engaged across ability levels. The teacher also skillfully redirected minor distractions without confrontation, for example, using an instance of laughter to reinforce pronunciation or rhythm, rather than punishing it. The Vowel Sounds (a, e, i, o, u) session was similarly effective in managing class behavior. While there were occasional bursts of chatter or background noise, the teacher maintained a positive tone and rhythm, sustaining choral responses and consistent skywriting drills. This lesson, while more repetitive than its ‘o’ counterpart, benefited from predictable pacing and active verbal participation, both of which helped reduce off-task behavior. The energy remained high, and students were generally responsive to cues without escalation. The *Urdu* lesson, meanwhile, remained relatively calm throughout but did not actively cultivate classroom energy or focus. Student behavior was manageable, but the teacher maintained a highly guided, low-energy tone, limiting student ownership or enthusiasm. Engagement was maintained more by compliance than excitement, and there was minimal spontaneity or student-led momentum.

The *Math* lesson revealed the risks of prolonged teacher talk without responsive energy management, while the *English phonics* sessions showcased the benefits of integrating movement, group structure, and rhythmic speech as implicit behavior tools. These findings suggest that embedding classroom control strategies into the pedagogical flow, rather than treating them as separate interventions, leads to more sustained focus and reduced disruptions - especially in early years classrooms.

4.2.5 Alignment with NIETE Lesson Plans

Table 4.2.5.

Grade 3 English: Long and short vowel sounds of a, e, i, o, u			
NIETE Segment	Model Expectation	Observed	Alignment
Opening (5 min)	Review past sight words, Introduce the SLO (Clear statement of learning objective)	Sight words review missing; SLO implied not explicitly stated	<i>Partial</i>
Explanation (5 min)	Group-level guided pronunciation of vowel sounds with gestures/audio	Taught via board and visuals, not group-divided	<i>Partial</i>
Practice (10 min)	Flashcard gestures and student-led vocalization of sounds	Done vocally, no kinesthetic gestures observed	<i>Partial</i>
Vowel Sound Focus	Long/short identification in key words (e.g., man, net, joke, bus)	Some words (paint, treat, bell, etc.) explored	<i>Aligned</i>
Blending	Tapping out phonemes into words (“f-a-n”)	Not observed	<i>Missing</i>
Segmenting	Clapping out sounds from words (“j-u-g”)	Not observed	<i>Missing</i>
Form New Words	Students form words with long/short vowels (two per vowel)	Some attempts via repetition, but not full activity	<i>Partial</i>
Conclusion (5 min)	Review of key vowel sounds and usage in words like "apple", "egg", "orange"	Covered in AEIOU visuals video and end recap	<i>Aligned</i>

Table 4.2.6.

Grade 3 English: The Short and Long Vowel Sound of ‘o’			
NIETE Segment	Model Expectation	Observed	Alignment
Opening (10 min)	Sight words introduction of SLO llong/short ‘o’	Sight word introduced + introduction done by	<i>Aligned</i>

		contrasting (hot/hope)	
Vowel Sound Focus	Kinesthetic + oral vowel drills	Gestures, skywriting, multisensory cues	<i>Aligned</i>
Blending and Segmenting	Moving from sounds to words and vice versa	Tap + Clap strategies per word	<i>Aligned</i>
Group Practice (20 min)	Beginners / Intermediate / Advanced tasks	Teacher explained & facilitated grouping	<i>Partial</i>
Student Created Words	Students generate new examples	Advanced group tasked to create new words	<i>Partial</i>
Writing Practice	Written repetition of sound words	“Write ‘hot’, ‘hope’ with sound”	<i>Aligned</i>
Conclusion/Closing	Concept check or recap question	Identify sounds in words	<i>Partial</i>

Table 4.2.7.

Grade 4 Maths: Subtraction			
NIETE Segment	Model Expectation	Observed	Alignment
Opening Drill (10 min)	Subtraction facts of -100 .	Present as rapid drills (e.g., $74-10$, $79-5$), but not focused on -100 pattern	<i>Partial</i>
Recall via Place-Value Chart	Chart drawn, symbols used (triangle, stick, etc.)	Fully met (Chart drawn at 4:20); identical symbol set used.	<i>Aligned</i>
Concrete Phase (20 min)	Students use materials in pairs	Teacher models with symbols; students only answer verbally	<i>Missed</i>
Pictorial Phase	Board illustrations of subtraction.	The teacher extensively uses drawing/cross-outs throughout.	<i>Aligned</i>
Abstract Phase	Pure Numeric subtraction (e.g., $7548-5639$).	Began at the end of the session.	<i>Partial</i>
Group Practice (20 min)	Beginner/Int/Adv groups with tiered tasks.	Not observed.	<i>Missed</i>
Exit Slip & Concept Check	Thumbs-up/down assessment.	Not observed.	<i>Missed</i>

Table 4.2.8.

Grade 4 Urdu: Compound Words (مركب الفاظ)			
NIETE Segment	Model Expectation	Observed	Alignment
Opening (6 min)	Teacher introduces + SLO recap	Used “ہمیشہ”, “آمدورفت” and others	<i>Aligned</i>
Explanation (25 min)	Segmenting words aloud; visual phonics	Done through flashcards and board but in less time (approx. 10 mins)	<i>Partial</i>
Practice (8 min)	Group division	Not implemented	<i>Missed</i>
Tapping & Clapping	Strategy to blend using clapping and tapping	Used intermittently during word tasks	<i>Partial</i>
Student Voice	Individual reading and word formation	Students answered aloud and some stood up	<i>Partial</i>
Conclusion (3 min)	Ask: “What are compound words?”	Some verbal recap but no structured exit	<i>Missed</i>

5. Conclusion

This mixed-methods evaluation provides a comprehensive assessment of the NIETE intervention and its implementation across treatment and control schools. It addresses all five research questions outlined in [Section 1.3](#), with the exception of RQ5, which will be further explored in the upcoming endline study.

RQ1: What is the impact of the NIETE program on student learning outcomes, particularly in foundational literacy and numeracy?

Quantitative findings reveal encouraging early results. Student scores on the Taleemabad English, ASER Math, and ASER Urdu tests were statistically significantly higher in Islamabad (treatment) schools compared to Rawalpindi (control) schools. Moreover, when broken down by grade level, no significant differences were seen at the grade 2 level as of short term evaluation, whereas performance was significantly better among grade 3 students for ASER English and Maths tests and in grade 4 for ASER sections of all three subjects. For Grade 4, the Taleemabad results indicate notable improvements in English learning outcomes under the NIETE program, with comparatively smaller gains observed in Urdu and Maths.

RQ2: To what extent has NIETE contributed to teachers' professional development?

Qualitative and quantitative findings indicate that NIETE enhanced teacher motivation, pedagogical planning, and classroom delivery. Teachers reported improvements in lesson structure, classroom management, and student participation, supported by the use of scripted lesson plans and continuous coaching.

RQ3: How effectively are NIETE's key components being implemented?

Implementation effectiveness varied. While most teachers engaged actively with the NIETE App and appreciated the structured lesson plans and CPD videos, gaps persisted in digital access, app usability, and timely content updates. The quality and consistency of coaching also varied across schools.

RQ4: What are the primary barriers and enablers to successful adoption of NIETE?

Barriers included poor internet connectivity, limited digital literacy particularly among older teachers, resistance to new methods, and short project timelines under the PSDP model. Enablers included supportive school leadership, accessible resources, and ongoing feedback from coaches and administrators.

RQ5: How can NIETE be improved or scaled sustainably?

This question will be addressed in detail in the final phase of the evaluation. However, preliminary insights emphasize the need for program sustainability to ensure long-term impact.

In summary, NIETE demonstrates promising early results in improving teaching practices and student engagement, though its effects are not yet systemwide. To achieve lasting transformation, the program must transition from a project-based model to an institutionalized framework that embeds continuous professional development, digital innovation, and accountability within the public education system.

6. Appendices

Appendix A: Taleemabad's Overview



 We're building the most efficient vehicle to deliver **learning impact at scale**.

1. To do so, we're using the LAYS-per-\$100 framework outlined in the "Smart-Buys" report by the World Bank.
1. This is a 'combo' program, delivering an intervention with multiple arms to maximise impact while keeping costs low.
1. A summary of the intervention:
 2. **Scripted pedagogy** - along with in-person coaching.
 3. **Digital Teacher Training** - with accreditation from the top university in PK.
 4. **Assessment** creation and grading tools.
 5. **Analytics** and visibility for school leaders and bureaucracy.
 6. **At home-learning** support and communication with parents.
 7. **Policy support** to help decision makers create the right incentives.

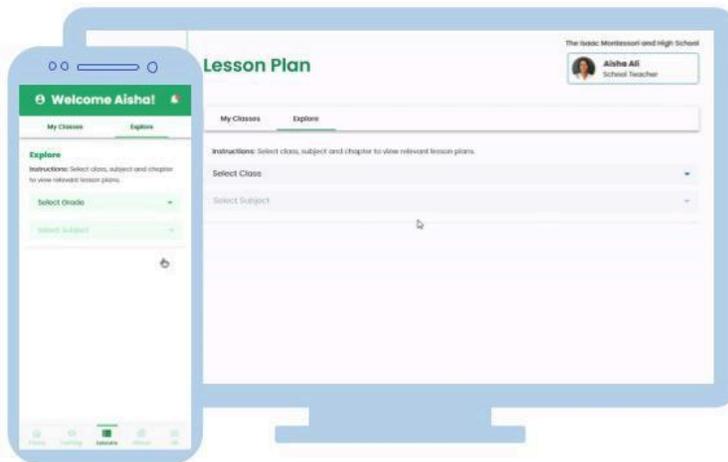


We build what global research advocates for to **achieve impact**.

- Combo programs work best:** We need to build engines, not cogs, and attack the problem from multiple angles (teacher, parent, school leader, policy maker)
- Programming for stunted learning levels is essential:** This means focusing on bringing children to grade level benchmarks, before enforcing ambitious curriculums.
- Training & In-person coaching is necessary:** This is the only way to help teachers navigate and cement behaviour change.
- Engaging parents in the schooling process yields dividends:** The school does not have to be the only place where learning happens.
- Positive nudges work better than negative ones:** Teachers are overworked and underappreciated. What makes their lives easier also lasts for longer.



NIETE for teachers (Lesson Plans)



Scripted lesson plans for **all subjects, mapped to all textbooks.**

Curriculum Coverage with **SNC as well as provincial curriculums in Punjab/KPK/Sindh/Balochistan**

Tracking + Progress visibility for school heads, parents, as well as senior education officers.

NIETE for Teachers (Training)



Bite Sized, Internationally Recognized
Digital Teacher Trainings.

1st Teacher Training App with
Accreditation from a top tier university in
Pakistan.

Trainings for teachers as well as school
owners.



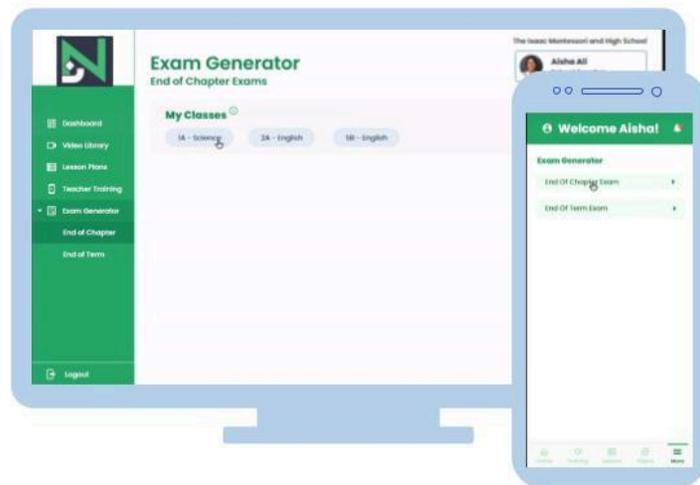
NIETE for teachers (assessments)



Expertly crafted question
bank with over 10,000+
questions.

Multiple question types,
divided according to
difficulty and higher/lower
order thinking.

Generate printable tests in
seconds.



NIETE for teachers (Exam Checker)



Multiple Models, ensuring languages (english/urdu) and diagrams are easily evaluated.

Marking Schemes option to add marking criteria to ensure increased accuracy

Automated grading & data recording in minutes.



NIETE for students & parents



Videos + gamified assessments for all subjects and grades.

Linked to the teacher portal - updates delivered to parents based on what the teacher has taught.

Works offline + can also send updates & quizzes via WhatsApp and SMS.

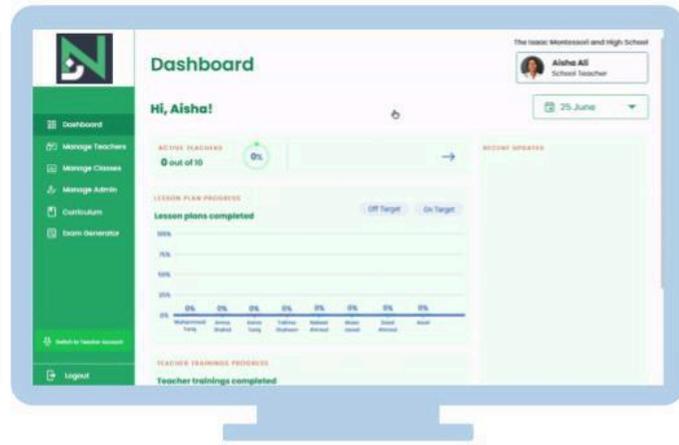
NEITE for School Leaders



Teacher attendance and performance **shown live to school heads.**

Student performance on **exams and at home-quizzes shown live.**

Capability to review progress on **curriculum throughout the year.**

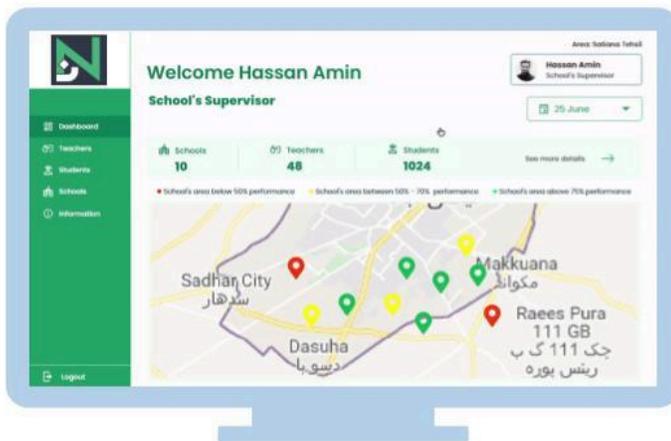


NIETE for bureaucracy



AAEOs, AEOs, DEOs and other bureaucracy members **can see live performance of schools.**

Platform automatically highlights **struggling schools/areas to focus efforts.**



Appendix B: Treatment and Control Sample

Table B1: Treatment vs Control Schools list

Treatment schools (Islamabad)	Control schools (Rawalpindi)
IMS (I-V) G-6/1-1	GMPS Soha
IMS(I-V) No.1 G-8/4	GGPS Chahat
IMS(I-V) No.2 G-8/1	GGPS Keral
IMS(I-V) No.1 G-8/2	GPS Kasserri
IMS(I-V) No.3 St 68 G-9/3	GGPS Khajut
IMS(I-V) F-10/2	GGPS Dhok Sehr
IMSG(I-X) G-10/3	GGPS Hoterian
IMS(I-V) G-11/1	GPS Postal Colony
IMS(I-V) No.2 I-9/4	GPS Standard Muslim Khayaban-E-Sir Syed
IMSB (I-VIII), MOHRA NOOR NIH	GPS Jhangir Abad Said Gul Town Rwp
IMCG (I-XII), UNIVERSITY COLONY (U.C)	GPS Chak Khas
IMSG (I-X), NHC	GGPS Dhok Mangtal No.1
IMCG (I-XII) MAIRA BEGWAL	GGPS Mc Ariya Mohallah Rwp
IMSG (I-V), PIND BEGWAL, DANA	GGPS Mc Chittian Hattian Mohallahakharidian
IMSG (I-V) , SHAHZAD TOWN	GMPS Ladian
IMSG Mohra Nagial	GGPS Mohra Tulla
IMSG (I-X) Humak	GGPS Model Chakran
IMSG (I-X) R/Col. Rawat	GPS Malpur
IMSG (I-V) Humak	GPS Sakho
IMSG (I-V) GANGOTA SYEDAN	GPS Khal Chattar
IMSB (I-X) Banni Saran	GGPS Mateel
IMSB (I-X) Naugazi	GGPS Behl Chaka
IMSG (I-X) Jhangi Syedan (F.A.)	GMPS Gola
IMSG (I-X) BQB	GPS Gujar Khan No. 2
IMSB (I-V) Sang Jani	GPS Jhanda

IMSG (I-V) Dhoke Suleman	GPS Nata Mohra
IMS (I-VIII) D-17	GGPS Narali Jabbar
IMCB,JABA TALI	GGPS Dhok Rajgan
IMSB(I-X) KHANNA NAI ABADI	GGPS Dulmi Tumma
IMSB(I-V)SOHAN	GPS Dhok Kayal
IMSG(I-V)SHAKRIAL	GGPS Guff Singal
IMSG(I-V) KHANNA NAI ABADI	GPS Mughal Abad
IMSG(I-VIII) SOHAN	
IMCB, F-11/1	
IMCG, ST. 25, F-6/2	
IMCG, F-8/1	

Appendix C: Power Analysis and Matching Process

Priori Power Analysis

An *a priori* power analysis was conducted prior to data collection to determine whether the proposed sample size was sufficient to detect the anticipated effect of the NIETE intervention. This analysis estimates the required sample size given the expected effect size, significance level (α), and available resources. In contrast, *post hoc* or observed power analysis is carried out after data collection to estimate the achieved power based on actual data.

For this evaluation, power calculations were conducted using the power package in STATA and the pwr package in R.

Effect Size and Sample Size Determination

According to the Terms of Reference (TORs) with the Ministry of Federal Education and Professional Training (MoFE&PT), CERP was to evaluate the intervention at a *minimum detectable effect size* (MDES) of 0.5, with flexibility to adjust based on expert recommendations. We therefore used 0.5 as the benchmark effect size, noting that any increase beyond this would only enhance statistical power. At this effect size, the statistical power for our sample reached 0.99.

The final sample comprised approximately 3,060 student observations per round, split between treatment and control groups. Across both rounds, this totals 6,120 observations. The treatment group included 36 schools from Islamabad, while the control group included 32 matched schools from Rawalpindi.

Because no baseline was collected prior to the start of the NIETE intervention, pre-treatment outcome variables were unavailable. This absence raised concerns about potential bias due to pre-existing group

differences. To address this limitation, we employed statistical matching techniques (see “Matching Process” below) to ensure comparability between treatment and control schools.

Rationale for Sample Size Selection

The selection of 36 treatment schools was determined through iterative power calculations using two effect sizes - 0.2 (small) and 0.5 (medium) - and an intra-class correlation coefficient (ICC) of 0.1. These simulations considered various combinations of sample sizes, power levels, and budget constraints.

At an effect size of 0.5, a total of 2,000 students (1,000 per round) would have been sufficient. However, to adopt a more conservative approach, we based our final design on the smaller effect size (0.2) and targeted a power of 65%, accounting for logistical and financial constraints.

This calculation yielded a required sample of approximately 2,710 students. To simplify implementation, this was rounded to 40 students per school. For the 32 control schools, this equals 1,280 students per round, leaving 1,430 students for the treatment group; corresponding to 36 schools. To ensure data robustness, we added a small oversample (five extra students per school), bringing the total to 3,060 per round (6,120 total).

At an $\alpha = 0.1$ and a total of 68 schools, the estimated statistical power ranged between 0.75 (for effect size = 0.2) and 0.99 (for effect size = 0.5). At the MoFE&PT-sanctioned effect size of 0.5, the power reached 0.99, confirming that the sample size was more than sufficient to detect the expected impact of the NIETE intervention.

Matching Process

Matching is a process that aims to eliminate unobserved potential sources of bias by constructing comparison groups that are similar across a set of matching variables. This approach helps ensure that any observed differences in outcomes between the treatment and control groups can be more confidently attributed to the treatment effect, rather than to pre-existing differences between the groups. The intervention schools in Islamabad were matched with control schools from Rawalpindi. Examples of matching variables include, comparable Grade 5 student test scores prepared by provincial governments, student-classroom ratio and student-teacher ratio. The exact variables on which matching was conducted have been added in the section below.

The aim of matching methods is to mimic a situation that would have been achieved through randomization, by balancing the background covariates between treated and control schools. There is a wide variety of matching methods that can be used for this purpose. In order to conduct this evaluation, we make use of mahalanobis distance matching. This method defines distance between various observations, calculated on the basis of pre-treatment covariate values. If two units have the same mahalanobis distance, this means that they must have the same underlying covariate values. The more different the covariate values, the further apart will be the mahalanobis distance values.

The idea behind matching using this method is that if you find control schools that have similar mahalanobis distance values to the treated schools, they will have similar covariate values. This in turn

will help ensure that the distribution of covariates between the treated and control schools will be similar and therefore the matched sample will yield schools that are similar to one another on average (or as similar as can be in the absence of randomization). This is one of the primary reasons for selecting the mahalanobis distance as a matching criterion: it ensures covariate proximity for matched schools.

In order to ensure that the selected/matched schools from Rawalpindi and Islamabad were similar across a set of observable characteristics, we ran balance tests. This process is done at baseline to ensure that both groups are similar at the beginning. If we can conclusively make the argument that schools were similar to one another to begin with, this will lend validity to our results and can help us confidently conclude that improvements in test scores can be attributed to the NIETE intervention.

The table C1 shows a comparison of means (t tests) of different variables in the two groups and whether these were significantly different from each other. A star sign on the value in the p-value column indicates that the averages in the two groups are significantly different from each other after the sample has been matched.

The table below shows that only Islamiat scores between the two years, and science scores in 2022 varied significantly between Rawalpindi and Islamabad schools among the variable list. The sample is balanced across all other variables that have been mentioned in the table below. This means that the groups of schools are similar across the set of test scores, student-teacher ratio and children per classroom.

Table C1.

	Rawalpindi		Islamabad		Difference	Standard Error	p-value
	N	Mean	N	Mean			
English 2023	32	62.09	36	59.35	2.73	3.18	0.39
Math 2023	32	60.87	36	62.45	-1.58	2.85	0.58
General Science 2023	32	59.98	36	60.86	-0.88	3.22	0.79
SST 2023	32	59.17	36	60.08	-0.91	2.87	0.75
Urdu 2023	32	65.71	36	61.04	4.67	3.16	0.14
Islamiat 2023	32	58.07	36	42.43	15.63	2.81	0.00***
English 2022	32	57.80	36	52.83	4.97	3.52	0.16
Math 2022	32	57.46	36	55.27	2.18	3.49	0.53
General Science 2022	32	52.01	36	44.32	7.69	3.49	0.03**
SST 2022	32	54.48	36	53.00	1.48	3.53	0.68
Urdu 2022	32	59.64	36	58.50	1.14	3.51	0.75
Islamiat 2022	32	55.54	36	63.06	-7.53	3.33	0.03**
Students per classroom	32	30.14	36	23.96	6.18	4.47	0.17
Student-teacher	32	22.67	36	20.75	1.92	2.42	0.43

ratio							
--------------	--	--	--	--	--	--	--

Data on the following set of variables would be required to match treatment and control schools:

1. Student test scores prior to intervention (Grade 5 tests)
2. Primary Teacher-level characteristics
3. Primary School-level characteristics

Table C2.

Variable Name	Data Level
English test scores 2022, 2023	School Level
Math test scores 2022, 2023	School Level
Urdu test scores 2022, 2023	School Level
General science test scores 2022, 2023	School Level
SST test scores 2022, 2023	School Level
Islamiat test scores 2022, 2023	School Level
Students per classroom	School Level
Student-teacher ratio	School Level
Urban-rural	School Level

Appendix D: ASER and Taleemabad Tests

ASER Test for English, Urdu and Maths

English Tools

Capital Letters Start from Here Sample-1

Small Letters Sample-1

F	C	L
P	R	
T	A	W
U	Y	

g	n	k
i	d	
h	e	m
o	z	

PAGE ①

English Tools

Words

Sample-1

Teach Safety Play

Help Happy

River Cow Wash

Track Clean

Sentences

Sample-1

Tooba is a new girl in the classroom.

Sana is sitting with her.

They started talking.

They are friends now.

Sentences

Ahmed went to the shop.

He bought a basket full of mangoes.

He invited all his friends.

They all enjoyed eating mangoes.

Arithmetic Tools

Sample-1

Single Digit Number Recognition	Two Digit Number Recognition	Three Digit Number Recognition
7 5	43 79	878 239
9 3	18 31	121 709
6 4	94 22	699 525
2 8	56 89	946 339
	64 72	440 887

From each section ask any 5 numbers from the child, out of which 4 numbers must be correct.

ہر ایک سیکشن میں سے بچے کو 5 اعداد پڑھنے کو کہیں، 5 اعداد میں سے 4 اعداد صحیح ہونے چاہئیں۔

Start from Here

Sample-1

2-digit Subtraction	3-digit Subtraction	Division
$\begin{array}{r} 56 \\ -15 \\ \hline \hline \end{array}$	$\begin{array}{r} 349 \\ -147 \\ \hline \hline \end{array}$	$7 \overline{)21}$
$\begin{array}{r} 79 \\ -34 \\ \hline \hline \end{array}$	$\begin{array}{r} 782 \\ -371 \\ \hline \hline \end{array}$	$3 \overline{)48}$
$\begin{array}{r} 92 \\ -67 \\ \hline \hline \end{array}$	$\begin{array}{r} 816 \\ -468 \\ \hline \hline \end{array}$	$5 \overline{)45}$
$\begin{array}{r} 47 \\ -29 \\ \hline \hline \end{array}$	$\begin{array}{r} 639 \\ -547 \\ \hline \hline \end{array}$	$9 \overline{)72}$

Ask the child to solve one 2 digit subtraction and one 3 digit subtraction question. Both must be correct.
 بچے سے تفریق کے 2 اعداد اور 3 اعداد والے سوالات میں سے کوئی ایک ایک سوال پوچھیں جو صحیح ہونے چاہیے۔

Ask the child to solve any 1 division question. That must be correct.
 بچے سے کوئی 2 سوال حل کرنے کو کہیں جو صحیح ہونا چاہیے۔

Urdu Tools

Sample-1

الفاظ Words

ترقی نزدیک
خوشی سواری سبزہ
گلی اہم
آم احساس جائزہ

Sample-1

حروف Letters

ق خ
ع ث ص
م ڈ
ی ت آ

Urdu Tools

Start from Here

Sample-1

Story کہانی

انعم اور فاطمہ صفائی کا ہمیشہ خیال رکھتی ہیں۔ تفریح کے دوران کوڑا دان ہونے کے باوجود جب کچھ طالبات کوڑا زمین پر پھینک دیتی تھیں تو انہیں بہت بُرا لگتا تھا۔ ایک دن وہ دونوں اپنے ساتھ بڑے بڑے تھیلے لے کر آئیں اور کوڑا اٹھا کر، ان کو تھیلوں میں ڈالنے لگیں۔ یہ دیکھ کر باقی طالبات بہت شرمندہ ہوئیں اور ان کے ساتھ مل کر کوڑا اٹھانے لگیں۔

اس عمل پر پرنسپل بہت خوش ہوئی اور انہوں نے تمام طالبات سے کہا کہ ہم سب کو زمین پر کوڑا نہیں پھینکنا چاہیے، بلکہ کوڑا دان میں ڈالنا چاہیے۔

QUESTIONS سوالات

Q1 پر نسیل نے تمام طالبات سے کیا کہا؟

Q2 طالبات نے انعم اور فاطمہ سے کیا سیکھا؟

Sample-1

Sentences جملے

شجر کاری سے مُراد درخت اور پودے لگانا ہے۔
 درخت اور پودے ماحول کو آلودگی سے بچاتے ہیں۔
 احمد نے اپنی بہن کے ساتھ مل کر ایک پودا لگایا۔
 دونوں بہن بھائی مل کر اس کا خیال رکھتے ہیں۔

Sentences جملے

علی اور آمنہ بہن بھائی ہیں۔
 وہ دونوں ہر روز اسکول جاتے ہیں۔
 آمنہ پڑھ لکھ کر پائلٹ بننا چاہتی ہے۔
 علی بڑا ہو کر اُستاد بننا چاہتا ہے۔

PAGE
 2

Ask the child to read story fluently.
 Ask questions, to ensure child understands the story,
 and mark accordingly

بچے سے کہانی روانی سے پڑھنے کو کہیں۔
 اگر بچے کہانی پڑھ لے تو اس سے سوالات پوچھیں۔

Please refer to the instruction manual for this section .

Kindly fold the paper.

Ask the child to read any 1 set of sentences.
 Child must read the sentences fluently.

بچے سے کوئی ایک جملہ پڑھنے کو کہیں۔ بچہ یہ جملے روانی سے پڑھے۔

Sentences

Sample

My name is Ali. Today, our mother is not feeling well. She is resting and taking a break. Our father is taking care of my younger brother and I. In the morning, we helped him clean the house. I was tired but I am happy I helped my parents. Our father also made eggs for dinner. They were very delicious. We all had a good time together as a family.

Answer the following questions

Q. Does Ali have a brother or sister?

Q. What did Ali and his family eat for dinner?

Q. Who did Ali help in cleaning the house?

Q: What is the meaning of delicious?

Sentences

Sample

Hira studies in class three.
She wakes up early in the morning.
She brushes her teeth regularly.
She goes to school on time.

Sentences

Ali is my best friend.
He is nine years old.
He has a cat as a pet.
He plays with the cat every day.

Arithmetic Tools

Sample-1

Number Recognition		Number Recognition	
45325	20092	9.99	2.00
76098	59641	4.56	6.02
94356	79800	78.3	45.2
10984	44835		
63308	90344		

From each section ask any 5 numbers from the child, out of which 4 numbers must be correct.
 ہر ایک سیکشن میں سے بچے کو 5 اعداد پڑھنے کو کہیں، 5 اعداد میں سے 4 اعداد صحیح ہونے چاہئیں۔

Start from Here

Sample-1

Subtraction	Division
4 and 5 Digit Subtraction	
$\begin{array}{r} 3847 \\ - 2284 \\ \hline \end{array}$	$10 \overline{)32790}$
$\begin{array}{r} 9832 \\ - 2342 \\ \hline \end{array}$	$2 \overline{)36822}$
$\begin{array}{r} 67384 \\ - 3 \\ \hline \end{array}$	$9 \overline{)3339}$
$\begin{array}{r} 34683 \\ - 96 \\ \hline \end{array}$	$4 \overline{)57740}$
$\begin{array}{r} 56729 \\ - 509 \\ \hline \end{array}$	
$\begin{array}{r} 83711 \\ - 7845 \\ \hline \end{array}$	

Ask the child to solve one 2-Digit and one 3-Digit question. Both must be correct.
 بچے سے کوئی سے 2 اعداد اور 3 اعداد والے ایک ایک سوال حل کرنے کو کہیں جو صحیح ہونے چاہئیں۔

Ask child to solve any 1 question. That must be correct.
 بچے سے کوئی 1 سوال حل کرنے کو کہیں جو صحیح ہونا چاہئے۔

Arithmetic Tools

Sample 1

Sample 1

Q 1: What time is it on the clock in hours, minutes and seconds?

س 1: اس گھڑی پر کیا وقت ہو رہا ہے؟ (گھنٹہ، منٹ اور سیکنڈز میں بتائیں)



Q 2: Sara has 250 carrots.

س 2: سارا کے پاس 250 گاجریں ہیں۔

How many boxes does she need, to pack these carrots if 1 box can fit 5 in them?

اُسکو کتنے اور ڈبے چاہئیں ان گاجروں کو پیک کرنے کے لئے اگر ایک ڈبے میں 5 گاجریں آتی ہیں؟



Q 3: Observe this pattern carefully and fill in the last two blanks.

س 3: اس پیمٹرن کو غور سے دیکھیں اور خالی جگہ پُر کریں۔

2 6 10 14 18 22 ____ ____

2 6 10 14 18 22 ____ ____

Ask all the children (5-16 years). If a child answers the questions correctly, mark her/him as a "can do" otherwise mark as "cannot do"

5-16 سال کے تمام بچوں سے حل کر جائیں۔ اگر بچے سوالات کے جوابات صحیح دیتے ہیں تو Can do پر نشان لگائیں ورنہ Cannot do پر نشان لگائیں۔

Urdu Tools

مشق نمبر 2

س 1: درج ذیل الفاظ کے مذکر لکھیں۔
 مذکر: بادشاہ مونث:
 مذکر: بھائی مونث:

مشق نمبر 3

س 1: دادا جان نے بچوں کو نصیحت کی۔
 اس جملے میں مفعول کیا ہے؟

مشق نمبر 4

س 1: ان الفاظ کے جملے بنائیں۔
 (الف) حیرت (د) زمین
 (ب) غلطی (ر) آئینہ
 (ج) جراثیم

Start from Here

مشق نمبر 1

Sample-1

نادیہ کی امی کو سبزیاں اگانا بہت پسند ہے۔ اُنہوں نے اپنے گھر کے صحن میں مختلف قسم کی سبزیاں اگا رکھی ہیں۔ ایک دن نادیہ نے اپنی امی سے پوچھا، ”امی! آپ نے سبزیاں گھر میں کیوں اگا رکھی ہیں؟ یہ تو ہم بازار سے بھی خرید سکتے ہیں۔“ نادیہ کی امی بولی، ”گھر میں سبزیاں اگا کر ہم تازہ اور صاف ستھری سبزیاں حاصل کر لیتے ہیں اور پیسوں کی بھی بچت ہو جاتی ہے۔“ اُس دن کے بعد سے نادیہ اور اُسکی امی مل کے سبزیاں صحن میں لگاتے ہیں اور نادیہ کا بھائی اُن کو روز پانی دیتا ہے۔
 جب سے نادیہ نے اس کام میں دلچسپی یعنی شروع کی کی ہے تب سے وہ سبزیاں زیادہ شوق سے کھانے لگی ہے اور اُس کو کھانے کی قدر کا اندازہ ہونے لگا ہے۔ اب نادیہ کھانا بالکل نہیں چھوڑتی کیونکہ اُس کو اب پتہ چل گیا ہے کہ سبزیوں کو اگانے میں کتنی محنت اور وقت جاتا ہے۔

سوالات QUESTIONS

Q1 گھر میں سبزی اگانے کے کیا فائدے ہیں؟

Q2 نادیہ سبزیاں کیوں شوق سے کھانے لگ گئی ہے؟

Appendix E: Teacher Survey

Treatment (Islamabad)

Introductory Note

Good morning, my name is [Enumerator's Name], and I am from the Centre for Economic Research in Pakistan (CERP). We are working with the Ministry of Federal Education and Professional Training (MoFEPT) to evaluate the NIETE trainings and scripted pedagogy.

We are conducting this survey to evaluate the NIETE intervention and understand its impact on teachers like you. The survey focuses on your professional background, experiences with the NIETE training app, coaches and how it has influenced your teaching practices and student outcomes. Your valuable insights will help us assess the program's effectiveness and improve future training initiatives for teachers like you.

Participation and Consent

Your participation in this survey is entirely voluntary, and you can choose to stop or skip any question at any point. Rest assured, all the information you provide will be kept confidential and will only be used for research purposes. The results will be analyzed in an aggregated and anonymized manner to ensure your privacy.

The survey should take about 20 - 30 minutes to complete. Do you have any questions before we begin?

Enumerator Observations

1. What is the average size of the classroom
2. What is the capacity of a classroom (i.e. no. of students)
3. Is there a Blackboard/Whiteboard?
4. Are there student made charts on display?

Table E1: Teachers' Survey (Treatment)

Sr. #	Questions	Responses	Type
1	Do I have your consent to participate in this survey?	Yes No	Single choice
Sections 1: Demographics			
2	Select the age group which you belong to	20-30 30-40 40-50 50-60 60+	Single choice
3	What is your gender?	Male Female	Single choice
4	What is your mother tongue?	Urdu Punjabi Sindhi Pashto Other	Single choice

5	What is your highest level of academic qualification?	No formal education Primary (grade 1 - 5) Middle (grade 6 - 8) Matric (grade 9 & 10) Intermediate (FA. / F.Sc.) Diploma Diploma in Education (D.Ed.) Bachelors (B.A) Bachelors (BSc) Bachelor's in Education (B.Ed.) Masters (M.A / MPhil) Master's in Education (M.Ed.) Doctorate in Education (Ph.D., Ed.D.) Doctorate (Ph.D) Other _____	Single choice
6	What is your highest level of professional qualification?	No formal qualification in teaching Primary Teaching Certificate (PTC) Certificate in Teaching (CT) Certified Teacher (e.g., National Testing Service (NTS) Certification) Subject-specific teaching certification (e.g., Mathematics, Science, English) Special education certification (e.g., Inclusive Education, SEN) ICT/EdTech training certification (e.g., digital tools for teaching) Other teaching-related degree or certification, specify	Single choice
7	How do you classify your position at this school?	Regular full-time teacher Regular part-time teacher Short-term substitute teacher Full time Contract Teacher Short term contract teacher other	Single choice

8	What is your current teaching appointment?	Teacher Head teacher who teaches a class Head teacher who teaches occasionally Head teacher with no teaching responsibility Other (specify)	Single choice
9	for EACH class, sections and subject that you teach, fill the following table (for this academic year)		
	Subject	Grade and Section	Number of students
1	_____	Grade _____ Section _____	--
2	_____	Grade _____ Section _____	--
10	Have you been a part of any professional training in the past? (Not NIETE)	Yes No	Single choice
10.1	If yes, which ones?	_____	Open ended
11	How many years of experience do you have as a teacher?	_____	Open ended
12	How many years of experience do you have as a teacher in this school?	_____	Open ended
Sections 2: Engagement with NIETE			
2.1: CPD trainings			
13	Which month did you start becoming a part of NIETE/Using the NIETE App?	April-May 2024 May-June 2024 July-August 2024 September-October 2024 November-December 2024"	Single choice
14	Which of the aspects of the intervention did you engage with the most?	Scripted Pedagogy Digital Teacher Trainings (App) Assessment creation Grading tool In-person personalised coaching Other	Multiple choice
14.1	If selected other, please specify _____		Open ended

15	How user-friendly and easy was the NIETE App to use?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	Single choice
16	When was the last time you interacted with the NIETE App?	This week Two weeks ago A month ago 2 months ago More than 2 months ago Other	Single choice
17	How often do you use the NIETE App before every lesson for planning purposes?	Always Very Frequently Occasionally Rarely Never	Single choice
18	Were you encouraged by the principal/school administration or head teacher to access the NIETE App and implement the resources on it?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	Single choice
19	How often did you use the NIETE App in the first month of the intervention? (When you first started using the NIETE App)	Never Rarely Occasionally Very Frequently Always	Single choice
20	How often were you able to access the internet reliably to use the NIETE App and its training resources?	Never Rarely Occasionally Very Frequently Always	Single choice

21	Were the videos available on the NIETE App useful?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	Single choice
22	Was the timetable available on the NIETE App useful?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	
23	Was the assessment generator available on the NIETE App useful?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	
24	Was the assessment checker/marker available on the NIETE App useful?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	
25	Were the lesson plans available on the NIETE App useful?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	
26	Are you satisfied with the resources available on NIETE App?	Yes No	Single choice

26.1	If you are satisfied with the resources available on the NIETE App? choose the statements that are the closest reasons for that choice:	<ol style="list-style-type: none"> 1. The resources are easy to access and navigate on the app. 2. The resources are directly relevant to my teaching needs and challenges. 3. The resources provide practical strategies that are easy to implement in the classroom. 4. The training materials are clear, comprehensive, and well-structured. 5. The app offers a variety of resources to address different teaching contexts and subjects 6. The professional development resources have contributed to noticeable improvements in students' understanding of new concepts. 7. The resources have helped me adopt teaching practices that enhance student engagement and participation. 8. The strategies provided have positively impacted students' academic performance and learning outcomes. 9. The NIETE App provides regular updates and additional content to keep the resources current. 10. Other. please specify _____ 	Multiple choice
26.2	If you are dissatisfied with the resources available on the NIETE App? choose the statements that are the closest reasons for that choice:	<ol style="list-style-type: none"> 1. The trainings were too basic and did not provide new learning opportunities. 2. The content lacked proper planning, structure, or organization. 3. The sessions were too short and lacked depth. 4. The topics were irrelevant to my professional needs. 5. Technology related issues 6. The availability of resources was inconsistent or limited. 7. The resources did not align with my career goals or professional development requirements. 8. Lack of time to go through the trainings and materials 9. No issues 10. Other _____ 	Multiple choice
27	Read the statements below about how NIETE App affected the following and select one answer.		

27.1	The intervention improved my lesson delivery	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
27.2	The intervention improved my students participation	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
27.3	The intervention helped me develop professionally	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
27.4	The intervention helped me track students learning progress	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
27.5	How likely are you to recommend the training resources on the NIETE App to other teachers?	1 Very Likely 2 Likely 3 Neutral 4 Unlikely 5 Very Unlikely	Single choice
2.2: Scripted lesson plans			
28	Have you implemented NIETE scripted lesson plans in your classroom?	Yes No	

28.1	If no, what barriers prevented you from implementing them? Read the statements below and choose the best possible answer.		Open ended
28.1.1	Lack of training and/or resources	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.2	Difficulty in adapting scripted content	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.3	I can develop better lesson plans myself	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.4	Lengthy lesson plans, meaning the curriculum cannot be finished in time	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.5	Student disengagement	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice

28.1.6	Technology-related issues	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.7	Not aligned with curriculum	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.8	Not enough time to prepare it	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.9	They are not updated in the app timely	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.1.10	Did not find them appropriate/useful for my class	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.2	If yes, how have students responded to it? Read the statements below and choose the best possible answer.	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.2.1	Students engaged and participated actively in class	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice

28.2.3	Students found the lessons easier to understand	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.2.5	Students' understanding of concepts improved noticeably	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
28.2.1 0	Students' academic performance improved	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
2.3: Coaches			
29	How often did you have one on one feedback sessions with the NIETE coaches?	Weekly Biweekly Monthly Rarely Never	Single choice
30	How often did the coach come to your class for observations?	Weekly Biweekly Monthly Rarely Never	Single choice
31	How competent and well prepared were the coaches?	1 Not at all 2 Very rarely 3 Somewhat 4 Significantly 5 Very significantly	Single choice

32	Read the statements below about how the NIETE Coaches affected the following AFTER class observations and select one answer.		
32.1	The coaches helped me access lesson plans	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice
32.2	The coaches helped me in locating material on the App whenever needed	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice
32.3	The coaches gave helpful feedback after observing my classes	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice
32.4	The coaches helped improve my way of teaching and delivering lessons	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice
32.5	The coaches provided timely and consistent feedback on my teaching practices.	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice

32.6	The coaches helped me align my teaching strategies with the curriculum.	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice
32.7	The coaches helped me address specific challenges I faced in the classroom.	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice
32.8	The coaches were available when I needed support or guidance.	1 Never 2 Rarely 3 Sometimes 4 Often 5 Always	Single choice
32.9	The frequency of coaching sessions was sufficient to meet my needs.	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
Section 3: Student learning outcomes			
33	Did the implementation of NIETE scripted lesson plans improve student learning outcomes (test scores) in your class?	Yes No Don't know	Single choice
33.1	If selected yes, what do you think contributed to this improvement? Select an option for each of the statements I read out		

33.1.1	The lesson plans helped give a structure to my lessons, the clarity of which improved student comprehension and retention	Strongly disagree Disagree Neutral Agree Strongly agree	
33.1.2	The resources provide practical strategies that are easy to implement in the classroom	Strongly disagree Disagree Neutral Agree Strongly agree	
33.1.3	The resources have helped me adopt teaching practices that enhance student understanding, engagement and participation	Strongly disagree Disagree Neutral Agree Strongly agree	
33.1.4	The lesson plans have helped me become efficient and I can spend more time giving individualized support to students who need it	Strongly disagree Disagree Neutral Agree Strongly agree	
33.2	If selected no, what are the reasons for the lack of improvement in student learning outcomes? Read the statements below and choose one option for each.		
33.2.1	Lack of access to sufficient resources and materials	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
33.2.2	Inadequate time to implement new strategies in the classroom	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice

33.2.3	Challenges in understanding the training content	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
33.2.4	Challenges in applying the training content	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
33.2.5	External factors such as disruptions, school closures, or socio-economic challenges	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
34	Did the teacher training videos on the NIETE App help improve student learning outcomes (test scores) in your class?	Yes No Don't know	Single choice
34.1	If selected yes, what do you think contributed to this improvement? Select an option for each of the statements I read out		
34.1.1	The resources are directly relevant to my teaching needs and challenges	Strongly disagree Disagree Neutral Agree Strongly agree	
34.1.2	The resources provide practical strategies that are easy to implement in the classroom	Strongly disagree Disagree Neutral Agree Strongly agree	

34.1.3	The resources have helped me adopt teaching practices that enhance student engagement and participation	Strongly disagree Disagree Neutral Agree Strongly agree	
34.1.4	The resources have helped me adopt teaching practices that have led to noticeable improvements in students' understanding of new concepts	Strongly disagree Disagree Neutral Agree Strongly agree	
34.1.5	The app offers a variety of resources to address different teaching contexts and subjects	Strongly disagree Disagree Neutral Agree Strongly agree	
34.1.6	The NIETE App provides regular updates and additional content to keep the resources current.	Strongly disagree Disagree Neutral Agree Strongly agree	
34.	If selected no, what are the reasons for the lack of improvement in student learning outcomes (test scores)? Read the statements below and choose one option for each.		
34.2.1	Lack of sufficient resources and materials	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
34.2.2	Inadequate time to implement new strategies in the classroom	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice

34.2.3	Challenges in understanding the training content	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
34.2.4	Challenges in applying the training content	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
34.2.5	Students were unable to understand the concepts	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
34.2.6	External factors such as disruptions, school closures, or socio-economic challenges	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
35	After the implementation of scripted lesson plans and training on the NIETE App, what did you notice? Read the statements below and choose one option for each.		
35.1	Students are participating more actively in class	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
35.2	Students are engaging with the course contents	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice

35.3	Students are completing their homework	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
35.4	Students are attending classes more often	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
35.5	Peer learning has improved amongst students	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
35.6	Students seem more confident about their own learning	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
35.7	Students are more eager to attend the classes and learn	Strongly disagree Disagree Neutral Agree Strongly agree	Single choice
Section 4: School and Classroom dynamics			
36	To what extent is each of the following a problem in THIS school?		
36.2	Student absenteeism	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice

36.5	Students dropping out	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice
36.7	Lack of parental involvement	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice
36.8	Poverty	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice
36.1	Poor student health	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice

Control (Rawalpindi)

Introductory Note

Good morning, my name is [Enumerator's Name], and I am from the Centre for Economic Research in Pakistan (CERP). We are working with the Ministry of Federal Education and Professional Training (MoFEPT) and PMIU.

The survey focuses on your professional background, your teaching practices and student outcomes.

Participation and Consent

Your participation in this survey is entirely voluntary, and you can choose to stop or skip any question at any point. Rest assured, all the information you provide will be kept confidential and will only be used for research purposes. The results will be analyzed in an aggregated and anonymized

manner to ensure your privacy.

The survey should take about 20 - 30 minutes to complete. Do you have any questions before we begin?

Enumerator Observations

1. What is the average size of the classroom
2. What is the capacity of a classroom (i.e. no. of students)
3. Is there a Blackboard/Whiteboard?
4. Are there student made charts on display?

Table E2: Teachers’ Survey (Control)

Sr. #	Questions	Responses	Type
	Do I have your consent to participate in this survey?	Yes No	Single choice
Sections 1: Demographics			
1	What is your name	_____	Open ended
2	Select the age group which you belong to	20-30 30-40 40-50 50-60 60+	Single choice
3	What is your gender?	Male Female	Single choice

4	What is your mother tongue?	Urdu Punjabi Sindhi Pashto Other	Single choice
5	What is your highest level of academic qualification?	No formal education Primary (grade 1 - 5) Middle (grade 6 - 8) Matric (grade 9 & 10) Intermediate (FA. / F.Sc.) Diploma Diploma in Education (D.Ed.) Bachelors (B.A) Bachelors (BSc) Bachelor's in Education (B.Ed.) Masters (M.A / MPhil) Master's in Education (M.Ed.) Doctorate in Education (Ph.D., Ed.D.) Doctorate (Ph.D) Other	Single choice
6	If selected other, please specify _____		Open ended

7	What is your highest level of professional qualification?	No formal qualification in teaching Primary Teaching Certificate (PTC) Certificate in Teaching (CT) Certified Teacher (e.g., National Testing Service (NTS) Certification) Subject-specific teaching certification (e.g., Mathematics, Science, English) Special education certification (e.g., Inclusive Education, SEN) ICT/EdTech training certification (e.g., digital tools for teaching) Other teaching-related degree or certification	Single choice
8	If selected other teaching-related degree or certification please specify _____		Open ended
9	How do you classify your position at this school?	Regular full-time teacher Regular part-time teacher Short-term substitute teacher Full time Contract Teacher Short term contract teacher other	Single choice
10	What is your current teaching appointment?	Teacher Head teacher who teaches a class Head teacher who teaches occasionally Head teacher with no teaching responsibility Other (specify)	Single choice
11	For EACH class, sections and subject that you reported in question 8 and 9, fill the following table		

	Subject	Grade and Section	Number of students
1	_____	Grade _____ Section _____	---
2	_____	Grade _____ Section _____	---
12	Is the school you are teaching at co education or not?	Yes No	Single choice
13	Do you have electricity in this school?	Yes No	Single choice
14	Is there running water for students in this school?	Yes No	Single choice
15	How many washrooms are in this school? Write a number	_____	Open ended
16	Which area is this school located in?	Rural Urban	Single choice
17	Does this school have a boundary wall?	Yes No	Single choice
18	How many teachers teach at this school? Write a number	_____	Open ended
19	When did you join this school? Write the year	_____	Open ended
20	What is the student enrollment in your school from grade 1 to 5? Write a number	_____	Open ended
21	How many years of experience do you have as a teacher?	_____	Open ended
22	How many years of experience do you have as a teacher in this school?	_____	Open ended
Section 2: Trainings			
23	Have you been a part of any professional development trainings or interventions?	Yes No	Single choice

23.1	If selected yes, which trainings?	_____	Open ended
23.2	If selected yes, when did you do these trainings?	_____	Open ended
23.3	Which of the aspects of the trainings did you engage with the most?	-----	Open ended
23.4	What motivated you to go through the trainings? Select all that apply	<p>I wanted to improve myself professionally</p> <p>I wanted to incorporate innovative teaching techniques in my classroom</p> <p>I wanted to use scripted pedagogy to improve my students learning outcomes</p> <p>I wanted to improve my classroom culture and student engagement</p> <p>I was asked/selected by the principal/administration to do the trainings</p> <p>Other</p>	Multiple choice
2.2: Scripted lesson plans			
24	Have you ever implemented scripted lesson plans in your classroom?	<p>Yes</p> <p>No</p>	Single choice
24.1	If no, please select the reasons for not implementing them?	<p>Lack of training and/or resources</p> <p>Difficulty in adapting scripted content</p> <p>Student disengagement</p> <p>Not aligned with curriculum</p> <p>Not enough time to prepare it</p> <p>I don't find them useful or necessary</p> <p>Other (please specify)</p>	Multiple choice

24.2	If yes, how have students responded to it?	Yes, most students respond positively Some students respond positively Neutral Few students respond positively No, students do not respond positively	Single choice
24.3	If yes, what specific challenges have you faced when using scripted lesson plans?	Difficulty in maintaining student engagement Insufficient flexibility to adapt to classroom needs Misalignment with teaching goals or curriculum Lack of clarity in instructions or content Overly rigid or prescriptive format Other (please specify): _____	Multiple choice
25	How effective do you find scripted lesson plans in achieving your teaching objectives?	Very effective Moderately effective Slightly effective Not effective	Single choice
26	How frequently do you refer to scripted lesson plans during your lessons?	Always Often Sometimes Rarely Never	Single choice
Section 3: Student learning outcomes			
27	Did the implementation of scripted lesson plans improve student learning outcomes (test scores) in your class?	Yes No Don't know	Single choice

27.1	Is selected no, what are the reasons for the lack of improvement in student learning outcomes?	<ul style="list-style-type: none"> 1. Lack of access to sufficient resources or materials. 2. Inadequate time to implement new strategies in the classroom. 3. Challenges in understanding or applying the training content. 4. Low student attendance or engagement. 5. External factors such as disruptions, school closures, or socio-economic challenges. 6. Other 	Multiple choice
28	Did you go through any trainings that directly affected your student learning outcomes?	<ul style="list-style-type: none"> Yes No Don't know 	Single choice
28.1	If yes, please specify how	-----	Open ended
Section 4: School and Classroom dynamics			
29	To what extent is each of the following a problem in THIS school?		
29.1	Student absenteeism	<ul style="list-style-type: none"> Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier 	Single choice
29.2	Students dropping out	<ul style="list-style-type: none"> Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier 	Single choice

29.3	Lack of parental involvement	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice
29.4	Poverty	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice
29.5	Poor student health	Not a problem Minor problem Moderate problem Serious problem Major obstacle/barrier	Single choice

Appendix F: Interview Guides for Qualitative Data Collection

Teachers

Section 1: Engagement with NIETE

Q1: Thank you for agreeing to participate in this interview. My first question is about your understanding and engagement with NIETE's intervention. What did you think about the intervention and which components did you engage with the most?

Apka iss interview mein hisa lenay ka bohat bohat shukria. Mera pehla sawal apsay NIETE ke sath apnay kesay engage kiya aur samjha. Apko NIETE kesa laga aur NIETE ke kin pehlun se apnay sabse ziada faida uthaya?

Q2: How often did you use the NIETE App and the training resources available on it?

Apnay NIETE App kitni martaaba istemaal ki? Shuruh se le kar ab tak batayein.

Q3: Were you able to access and understand the professional training resources on the App?

Kya apko App par mujood videos aur baki cheezain samhagh ayi aur unki rasai mili?

Q4: What were your thoughts and feelings on and about the App?

NIETE App ke baray mein apkay kya khayalat hain?

Q5: Which parts of the training and the App in general did you find the most helpful and useful and why? And which parts were not helpful, and why?

NIETE App par kaunsi cheezain apko sabse ziada faidaman lagein aur kaunsi cheezain nahi lagayein? Apni wajuhat ko vazeh karein.

Q6: Did the training resources on the App help you in lesson planning and improving classroom culture? If yes, how? If no, why not?

Kya NIETE App par mujooda videos aur resources ne lesson planning, delivery aur classroom ke overall culture aur mahol mein behtari lenay mein madad ki hai?

Q7: Were there any other professional aspects that the training resources on the App helped you in?

Kya apko professionally iss App par mujood mawad in madad ki?

Q8: Did this intervention affect your confidence or professional competency in any way?

Kya NIETE ki wajah se apkay confidence par asar para? Agar han toh vazeh karein.

Q9: What are your thoughts on using scripted pedagogy in the classroom?

Scripted lesson plans ke baray mein apka kya khayal hai?

Q10: Was it your first time using scripted lesson plans? Did it help your lesson planning?

Kia app scripted lesson plans pehli dafa istemaal kar rahi hain? Kya NIETE ke lesson plans ne apki planning par asar dala?

Q11: How confident were you in implementing NIETE in your classroom?

NIETE ke lesson plans ko class mein parhanay mein app kitni pur aitemaad thein/hain?

Q12: How did NIETE affect student engagement/learning experience?

NIETE lesson plans ne students ke parhnay ke amal aur parhai mein shoq/dilshaspi par kesay asar dala?

Q13: Did NIETE affect student peer learning and group work? If yes, can you share examples of before and after the intervention? If no, why not?

Kya NIETE lesson plans ki wajah se students ke darmiyan group work barha? Agar han toh vazeh tor par misaal dein.

Q14: What did you think about the parental involvement component of NIETE? Can you share how, if it did, affect learning, engagement, attendance or anything else worth mentioning?

Kya NIETE ki wajah se parents ki involvement aur shirkat mein koi farq aya? Vazeh karein

Q15: Did you feel supported by the school administration and area administrators in implementing this intervention? If not, how could they have supported you better?

Kya school administration aur principal ne apko NIETE program mein maded ki? Agar han toh kesay aur nahi toh kesay madad karsaktay thay?

Section 2: Engagement with NIETE Coaches

Q16: In your opinion, what is the purpose of NIETE coaches?

Apki nazar mein NIETE coaches ka kia maqsad hai?

Q17: How often did you meet with the NIETE coaches?

App coaches se kitni martaba milti thein?

Q18: How did they support you in your lesson planning, delivery and other aspects of teaching?

Kya coaches ne apko lesson plan karnay, parhanay ya kisi aur parhany ke tareekay mein maded ki? Agar han toh vazeh karein

Q19: Did you feel that the personalised support provided was adequate and helpful? If yes, how? If not, how could it be better?

Kya coaches ke sath personal (one-on-one) madad kaafi thi?
Agar han, vazeh karein Agar nahi, Vazeh karein

Q20: After feedback from the coaches, did you have clarity on how to proceed?

Coaches ke feedback ke baad agay kya karna hai yeh baat bilkul clear thi?

Q21: What did you find the most useful in your engagement with the coaches?

Coaches ke sath baatcheet aur taluq mein sabse faidamand cheez apko kia lagi?

Q22: Was there anything that could have been better in terms of engagement with and feedback from the coaches?

Koi aesi cheez hai jo coaches ke sath behtar ho sakti thi; feedback, engagement etc?

Section 3: Challenges and barriers

Q23: Were any of the challenges that you faced in using the NIETE App?

Kya NIETE App ko istemaal karnay mein apko koi mushkilaat ya challenge aye?

Q24: Are there any aspects of the App that you would like to be improved?

NIETE App ke kya koi aesy pehlu hain jo app chahti/chahtay hain ke behtar hon?

Section 4: Student learning outcomes

Q25: Did your engagement with the resources on the NIETE App help improve your subject's learning outcomes in the classroom?

NIETE App par mujood videos, timetable, lesson plans aur degar cheezain ne kya apkay subject ki learning outcomes (test scores) mein behtari layi?

If yes,

If no,

Q26: How? Kesay

Q19: Why not? Kyun nahi?

Principals

Section 1: Engagement with NIETE

Q1: Thank you for agreeing to participate in this interview. To start, what is your understanding of NIETE's intervention, and what role did you play in its implementation at your school?

Ap ka iss interview mein hissa lene ka bohot shukria. Sab se pehle, kia ap mujhe bata sakti hain ke apke khayal mein NIETE ki intervention kia thi? Aur ap ka iss ko implement karne mein apne school mein kia kirdaar tha?

Q2: Which components of the NIETE intervention do you think your school engaged with the most, and why?

Apke khayal mein apke school ne NIETE ki kis cheez ko sab se ziada istemaal kiya aur kyun?

Q3: How often did you review or interact with the NIETE App?

How often did you review the resources provided to teachers?

Ap ne khud kitni martaba NIETE app istemaal ki? Aur kitni baar teachers ko diye gaye resources ko khud dekha?

Q4: Did you find any specific aspects of the training resources particularly useful for your teachers' professional development?

Kia resources ke koi khaas pehlu thay jo apko laga teachers ki professional development ke liye khaas tor per mufeed hon ge?

Q5: Were there any components (NIETE app, CPD resources on the app, coaching, scripted pedagogy, assessment creation and grading tool) of the intervention that you believe were less effective or needed improvement?

Kia koi aise pehlu thay (CPD resources, coaching, scripted pedagogy, assessment creation and grading tool) jo apko kam mufeed lage ya jin mein ap mehsoos karti hain ke behtari layi ja sakti hai?

Q6: Did any of the teachers in your school refuse to use NIETE resources? How did you handle such a situation?

Kia apke school ki kisi teacher ne NIETE resources istemaal karne se inkaar kiya? Ap ne aisi soorat-e-haal ko kaise handle kiya?

Q7: Did you attend any classroom observations? If yes, what are your impressions

Kia ap ne kisi classroom observation mein hissa liya? Apke iss ke baare mein kia khyalaat hain?

Q8: Did you notice any changes in how teachers planned lessons or managed classrooms after engaging with NIETE's training resources?

Kia ap ne teachers ke parhane ke tareeqe ya class ko sambhalne ke tareeqe mein NIETE resources ke istemaal ke baad koi faraq mehsoos kiya?

Q9: In your opinion, how well did the training resources on the NIETE App support teachers in improving classroom culture and student engagement?

Ap ke khayal mein NIETE App per mojud training resources ne teachers ko kis hadd tak classroom ke mahol/culture aur students ki shirkat ko behtar karne mein madad ki?

Q10: How did you support teachers in using scripted pedagogy, especially for those using it for the first time?

Ap teachers ko scripted pedagogy ke istemaal mein kis tarha madad karti hain, khaas tor par un teachers ki jo NIETE ko pehli baar istemaal kar rahe hain?

Q11: What changes, if any, have you observed in teachers' attitudes towards NIETE over time?

Ap ne waqt ke saath teachers ke NIETE ki taraf rawaiyye mein kis tarha ka farq mehsoos kiya hai?

Q12: What role did you play in ensuring that the intervention was smoothly implemented at your school?

Ap ne NIETE ki intervention ko apne school mein kamyab tor per implement karne mein kia kirdaar ada kiya?

Q13: How did the school administration support teachers during the implementation of NIETE?

School ki intezamiya ne teachers ko NIETE ki implementation ke doraan kis tarha madad ki?

Q14: Do you feel the intervention contributed to the professional confidence and competency of your teachers?

Kia ap ko lagta hai ke NIETE intervention ne teachers ki khud aitemaadi aur qabliyat ko behtar karne mein kirdaar ada kiya hai?

Q15: In your opinion, were teachers given adequate time and support to effectively implement NIETE in their classrooms? If not, what could have been done differently?

Ap ke khayal mein kia teachers ko classroom mein NIETE implement karne ke liye kaafi waqt aur support faraham ki gayi? Agar nahi, tou iss ko kaise behtar kiya ja sakta tha?

Section 2: Engagement with NIETE Coaches

Q16: How often do you interact with NIETE senior staff, and how receptive are they to addressing your concerns?

Ap kitni baar NIETE ke senior amle se baat cheet karti hain, aur woh apke khadshaat ko door karne ke liye kitni koshish karte thay?

Q17: How frequently did you interact with NIETE coaches during the intervention?

Ap intervention ke doraan NIETE coaches se kitni baar baat cheet karti theen?

Q18: What was the teachers' reaction to having coaches support their activities?

NIETE coaches ke teachers ko support karne par unka kia radd-e-amal tha?

Q19: In what ways did the coaches support teachers in lesson planning, delivery, and other teaching practices?

Coaches ne teachers ko lesson planning aur parhane ke tareeqe mein kis tarha madad ki?

Q20: Did you receive feedback from NIETE coaches about the implementation process, and how did you use that feedback to support teachers?

Kia NIETE coaches ne apko istemaal ka tareeqa bataya, aur apne iss feedback se teachers ki kaise madad ki?

Q21: Do you think the personalized support provided by the coaches was adequate and impactful? Why or why not?

Kia apke khayal mein coaches ka diya gaya zaati feedback mufeed aur kaafi tha? Kyun ya kyun nahi?

Q22: Did you notice improvements in teaching practices or classroom management among teachers after their engagement with NIETE coaches?

Kia ap ne NIETE coaches se baat cheet ke baad teachers ke parhane ke tareeqe ya classroom ko manage karne ki salahiyat mein koi behtari dekhi?

Q23: Was there anything that could have been improved in terms of the coaches' engagement with the school and teachers?

Kia coaches ki school aur teachers ke saath engagement mein koi behtari layi ja sakti thi?

Section 3: Challenges and Barriers

Q24: What challenges did your school face while implementing the NIETE intervention and how were they addressed?

Apke school ne NIETE ko implement karte hue kin mushkilaat ka saamna kiya, aur ap ne inko kaise handle kiya?

Q25: Were there any barriers specific to the use of the NIETE App or its resources?

Kia khaas tor per NIETE app ya resources ke istemaal mein kisi mushkilaat ka saamna kiya?

Q26: Do you think the professional development resources provided through the intervention could be improved? If so, how?

Kia ap ko lagta hai ke intervention mein diye gaye professional development ke resources ko behtar kiya ja sakta hai? Agar han tou kaise?

Q27: From your perspective, what additional support could have been provided to teachers to ensure a smoother implementation of NIETE?

Ap ke khayal mein teachers ko izaafi tor per kaise madad ki ja sakti thi ke NIETE ki implementation aur asaani se ho sake?

Section 4: Student Learning Outcomes and School Impact

Q28: Based on your observations, did the NIETE intervention lead to noticeable improvements in student learning outcomes?

Ap ke mushahide ke mutabiq, kia NIETE intervention ne students ke learning outcomes mein wazeh tor per behtari ki?

Q29: If yes, what changes did you observe in student participation, behavior, or learning approaches before and after the intervention, and how were these changes achieved?

Agar han, tou ap ne students ki shirkat, rawaiyye, aur seekhne ke tareeqe mein intervention se pehle aur baad mein kia changes dekhe, aur yeh changes kaise aye?

Q30: Do you think the intervention's training and coaching contributed to better teacher-student relationships or classroom culture?

Kia apko lagta hai ke student aur teacher ke darmian taluqaat aur classroom ke mahol mein intervention ki training/coaching ki wajha se behtari ayi?

Q31: Overall, how would you evaluate the impact of NIETE on your school's teaching practices and student outcomes?

Majmui tor per ap apne school ke parhaane ke tareeqe aur students ke nataij par NIETE ke impact ko kis tarha dekhti hain?

Q32: Would you recommend the NIETE intervention to other schools? Why or why not?

Kia ap doosre schools ko NIETE intervention apnane ki tajweez karein gi? Kyun ya kyun nahi?

Representative from Ministry

Section 1: Engagement with NIETE

Q1: Thank you for agreeing to participate in this interview. My first question is about your understanding and engagement with NIETE's intervention. In your understanding, what is NIETE intervention trying to achieve?

Q2: How is NIETE different from other teacher training interventions in public schools?

Q3: What do you think about NIETE as a whole? Which aspects worked and which did not?

Q4: In your opinion, how effective were NIETE's training resources on the App?

Q5: What were the major barriers and challenges that were faced by teachers, principals or other stakeholders involved?

Q6: How involved was the ministry in this intervention?

Q7: What role do you think the Ministry/Government should play in scaling and sustaining NIETE's intervention across more schools?

Q8: How do you think NIETE aligns with the government's broader educational goals and policies?

Q9: Were there any particular aspects of NIETE that you found innovative or worth replicating in other programs?

Section 2: Impact Assessment

Q10: From your perspective, what impact did NIETE have on teacher quality and student outcomes?

Q11: How did the feedback from teachers, principals, and stakeholders inform your assessment of the intervention?

Q12: Are there specific metrics or data points that you used (or would have liked to use) to evaluate NIETE's success?

Section 3: Collaboration and Integration

Q13: How well do you think NIETE integrated with existing teacher training programs and initiatives by the Ministry?

Q14: Was there effective collaboration between NIETE, school management, and district officials? Why or why not?

Q15: Did the intervention require policy adjustments or new frameworks to be implemented? If so, how were these managed?

Section 4: Technology and Digital Training

Q16: How user-friendly do you think the NIETE App was for teachers, principals, and other stakeholders? Were there any usability concerns?

Q17: Did the app provide adequate content and features to support teachers' professional development effectively?

Q18: Were there any technical challenges (e.g., internet connectivity, device access) that affected the use of the app in public schools?

Q19: In your opinion, how successful was the app in delivering personalized training and assessment tools?

Q20: Did the integration of the app with other tools used in public schools create any challenges or benefits?

Q21: How do you think the use of technology (like the NIETE App) compares to traditional teacher training methods in terms of cost, accessibility, and impact?

Section 5: Future Directions

Q22: Based on your experience, what recommendations would you make for improving NIETE or similar interventions in the future?

Q23: What are your thoughts on the sustainability of this intervention after external support from Taleemabad ends?

Representatives from Taleemabad

Q1: From your perspective, what is the overarching goal of the NIETE intervention?

Q2: What were your main responsibilities in implementing NIETE across the schools?

Q3: Can you walk me through the process of how NIETE was rolled out in the schools from Taleemabad's side?

Q4: What strategies were put in place to ensure alignment between Taleemabad's implementation and the Ministry/FDE's expectations?

Q5: How were lesson plans, CPD videos, and the exam generator developed and updated during the program?

Q6: Speaking of the content, was it developed against some international training competencies or some other teacher training standards? Can you elaborate on that? (Certification)

Q7: How did you recruit, train, and manage the coaches?

Q8: How did the NIETE administration monitor the quality of coaching and ensure consistency across different schools?

Q9: Can you describe how feedback from coaches, teachers, and FDE was collected, analyzed, and acted upon?

Q10: Were there any significant changes made to the program content or delivery during implementation? What triggered those changes?

Q11: How did you address challenges related to internet connectivity, technology adoption, or resource gaps in schools?

Q12: Based on your observations, what impact did NIETE have on teacher competencies and classroom practices?

Q13: Which program components (e.g., coaching, digital content, lesson plans) were most effective in driving change?

Q14: Were there any surprising or unexpected outcomes - positive or negative- from the intervention?

Q15: Did you observe differences in program uptake or effectiveness between urban and rural schools? What were the biggest challenges faced during NIETE's implementation?

Q16: Were there any systemic or institutional constraints that limited the program's potential impact?

Q17: How did NIETE manage resistance from teachers or school leadership, if any?

Q18: Looking back, what would you have done differently in the program's rollout or management?

Q19: In your view, what needs to happen for NIETE to be sustainable in the long term?

Q20: What advice would you give to the Ministry/FDE for scaling NIETE to other provinces?

Q21: If you could secure additional resources, what would be your top three priorities for strengthening the program?

Q22: Is there anything we haven't discussed that you think is critical for understanding NIETE's implementation and impact?

Taleemabad Coaches

Section 1: Engagement with NIETE

Q1: Thank you for agreeing to participate in this interview. My first question is about your understanding and engagement with NIETE's intervention. In your understanding, what is NIETE intervention trying to achieve?

Q2: How do you see your role in this intervention?

Q3: What makes a "good teacher" according to you?

Q4: What do you think of the TEACH Tool? How did it impact your evaluation of the teachers?

Q5: How were you trained to evaluate and support teachers within the framework of the NIETE intervention? Do you feel the training was adequate? Why or why not?

Q6: How do you think personalised support as a component of NIETE affected teachers? This can be about their teaching abilities, pedagogy, confidence or anything else.

Q7: What was the initial reaction and attitude of the teachers when they were evaluated by you? Can you share examples of such attitudes that made your work easier or harder?

Q8: What kinds of challenges did you face in offering personalized support to teachers?

Q9: How did you make sure that the teachers incorporated the feedback you offered in their classrooms?

Q10: What kind of resistance did you face from the teachers who were taking feedback from you? Please elaborate.

Q11: How did you support the teachers in improving their classroom practices?

Q12: How many teachers were you providing personalised feedback to? Were you able to manage each relationship effectively?

Q13: If no, what could have been done to improve this?

Q14: Which unforeseen challenges did the teachers bring up that were not anticipated during the start of intervention? How did you handle them?

Q15: In your experience, how did the intervention improve teachers' professional competencies and classroom practices? How much role do you think personalised coaching played in this, if any.

Q16: How did you build trust with the teachers to ensure they were receptive to your feedback and support?

Q18: Were there any systemic or institutional barriers that affected your ability to provide effective coaching? If so, how did you address them?

Section 2: Reflections on Coaching and Outcomes

Q19: What specific teaching strategies or practices do you think improved the most as a result of your coaching?

Q20: What changes in the teachers' attitudes or behaviors were observed by you over the course of the intervention?

Q21: How did you measure or track the progress of teachers you were coaching?

Q22: Were there any cultural or contextual factors that influenced how you delivered coaching or how teachers responded to it?

Section 3: Suggestions for Improvement

Q23: What aspects of the NIETE intervention, in your opinion, worked particularly well?

Q24: If you could suggest one significant change to the intervention's approach to coaching, what would it be and why?

Q25: What additional resources, tools, or support would have helped you in your role as a coach?

Appendix G: Taleemabad’s Test Methodology and On-Target Grade Level Results

Taleemabad’s tests categorisation of students for Grades 1–3 mirrors the official ASER methodology and student-learning categories (as shared in [2.4.1.2](#)). It follows the same progression and criteria for English, Urdu, and Math to ensure comparability of results across grade levels. However, for Grades 4–5, Taleemabad developed an extended version of the ASER methodology to capture higher-order skills aligned with its learning objectives. These benchmarks were shared internally by Taleemabad. Below is the ASER methodology for Grades 1-3 and Taleemabad’s methodology for grades 4 and 5.

ASER Grades 1-3 Methodology:

English

Start with capital letters, 4 out of 5 must be correct.

If the child is unable to answer 4, categorize the child as “Nothing.”

If capital letters are correct, move to small letters. 4 out of 5 must be correct.

If the child is unable to answer 4, categorize the child as “Capital Letters.”

If small letters are correct, move to words. 4 out of 5 must be correct in addition to meaning.

If the child is unable to answer 4, categorize the child as “Small Letters.”

If words are correct, move to sentences. 6 out of 8 (3 out of 4 in each box) must be correct in addition to meaning.

If the child is unable to answer or is not fluent, categorize the child as “Grade 2 - Words.”

If the child answers correctly, categorize it as “Grade 2 - Sentences.”

Urdu

Start with letters, 4 out of 5 must be correct.

If the child is unable to answer 4, categorize the child as “Nothing.”

If letters are correct, move to words. 4 out of 5 must be correct.

If the child is unable to answer 4, categorize the child as “Letters.”

If words are correct, move to sentences. 6 out of 8 (3 out of 4 in each box) must be correct in addition to meaning.

If the child is unable to answer or is not fluent while reading, categorize the child as “Grade 2 - Words.”

If sentences are correct, move to comprehension. Both questions should be correct, and the child should be able to read fluently.

If the child is unable to answer or read fluently, categorize the child as “Grade 2 - Sentences.”

If the child answers correctly and reads fluently, categorize as “G2 – Comprehension.”

Math

Start with subtraction. One each from both 2 and 3 digits must be correct. If so, move to division.

If subtraction is correct: ask to divide. If the child is successful, categorize as “Grade 2 – Division.” Else, categorize as “G2 – Subtraction.”

If the child was unsuccessful with subtraction to begin with, ask to recognize 1, 2 and 3 digit numbers starting from 3 digit. 4 out of 5 must be correct.

If 3 digit numbers are recognized successfully, categorize the child as “3 digit recognition” and stop.

If 2 digit numbers are recognized successfully, categorize the child as “2 digit recognition” and stop.

If 1 digit numbers are recognized successfully, categorize the child as “1 digit recognition” and stop.

If unsuccessful, categorize the child as “Nothing.”

In addition, ask the general knowledge questions but they are not used in learning level assessment, to be used only if there are too many kids at the highest level.

Taleemabad’s Grades 4-5 Methodology

English

Ask the child to read two sets of sentences. 6 out of 8 must be correct.

If not, administer the ASER 1-3 test starting from Sentences and move down to Words and then Letters (if answer is incorrect).

If sentences are correct, move to story. 3 out of 4 answers should be correct.

If not, categorize the child as “Grade 4 - sentences.”

If story answers are correct, categorize the child as “Grade 4 - story.”

Urdu

Ask the child to read the story and answer questions. Reading should be fluent and both answers should be correct.

If not, administer the ASER 1-3 test starting from Story and move down to Sentences, Words and Letter (in that order).

If the story is correct, ask grammar questions. both must be correct.

If not, categorize the child as “Grade 4 - story”

If grammar questions are correct, move to sentences. Child should be able to make two sentences.

If not, categorize the child as “Grade 4 - grammar.”

If sentences are correctly made, categorize the child as “Grade 4 - sentences.”

Math

Two 4 digit and 5 digit subtraction problems (one each) should be correct. If not, administer the ASER 1-3 test.

If correct, move to division. If an incorrect response to Taleemabad division, mark the child as “Grade 4 - subtraction.”

If correct response to division, move to 5 digit and decimal number recognition. 4 out of 5 must be correct in both cases. If the child gets 5-digit right and decimal wrong, mark it as “5 digit number recognition.” If both are correct, mark it as “Decimal number recognition.”

In addition, ask the general knowledge questions but they are not used in learning level assessment, to be used only if there are too many kids at the highest level.

Taleemabad’s grade-level thresholds (on-target indicator)

The grade-level competence rubric shared by Taleemabad shows whether a student performed at the competency expected for their grade in a given subject. The criterion for being “on target” is meeting the benchmark item(s) specified for that grade and subject. The benchmarks applied in this are shown in the table below.

Taleemabad grade-level thresholds

Targets for English:	Targets for Urdu:	Targets for Maths:
1: 100% at Words	1: 100% at Words	1: 100% at 3-digit recognition
2: 100% at G2 Sentence	2: 100% at Sentence	2: 100% at Subtraction
3: 100% at G2 Sentence	3: 100% at G2 Story Fluency	3: 100% at G2 Division
4: 100% at G5 Sentence Meaning	4: 100% at G5 Story Fluency	4: 100% at G5 Division
5: 100% at Story	5: 100% at G5 Story Fluency	5: 100% at G5 Division

Figure G1

**G2 here stands for grade 2 and G5 stands for grade 5*

A student is classified as “**on target**” for a grade if they meet the benchmark listed for their grade in the table above. We use this binary indicator to report the share of students meeting expected grade competencies and to compare proportions across treatment and control groups.

In the section below we present the results for on-target variable.

English:

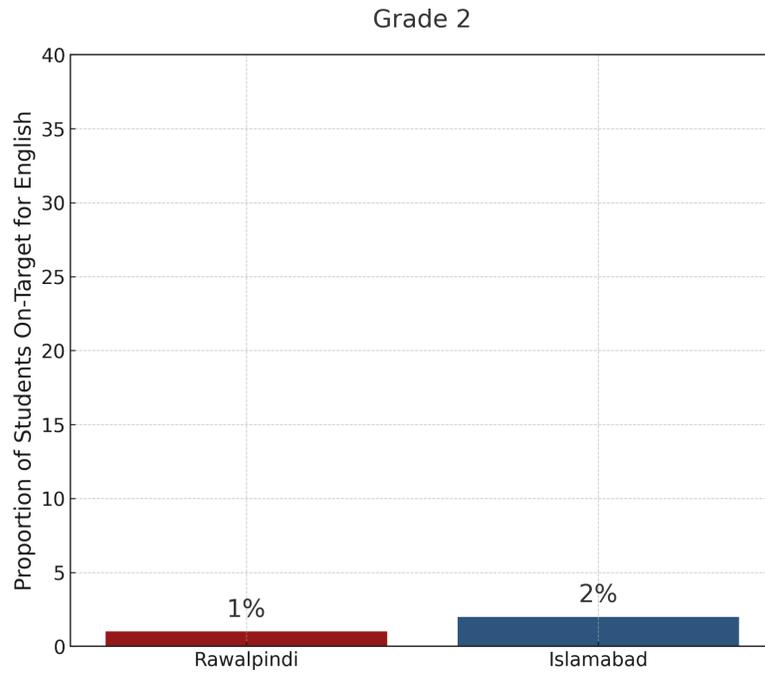


Figure G2

In Islamabad, 2.4% of grade 2 students were on-target for English meaning they could independently read simple sentences and in Rawalpindi, 0.6% of grade 2 students were on-target for English.

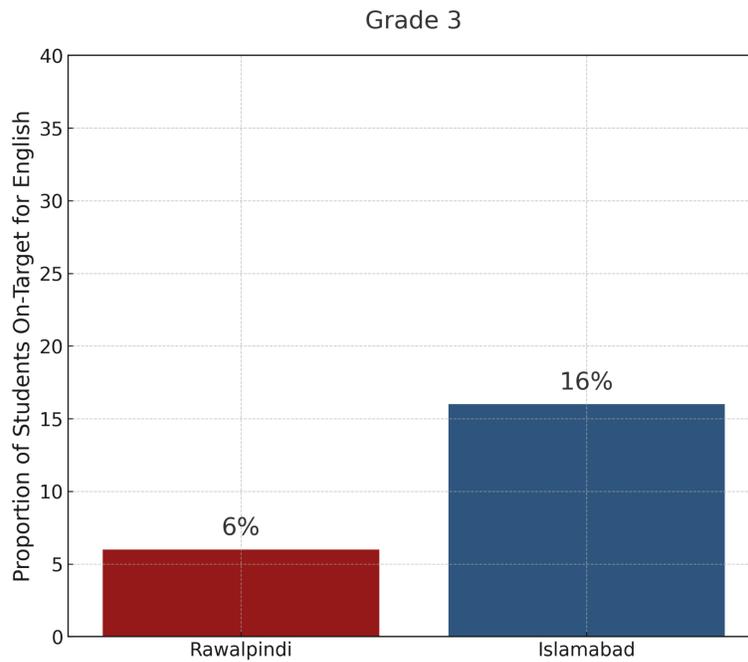


Figure G3

In Islamabad, 16% of grade 3 students were on-target for English meaning they could independently read simple sentences and in Rawalpindi, 6% of grade 3 students were on-target for English.

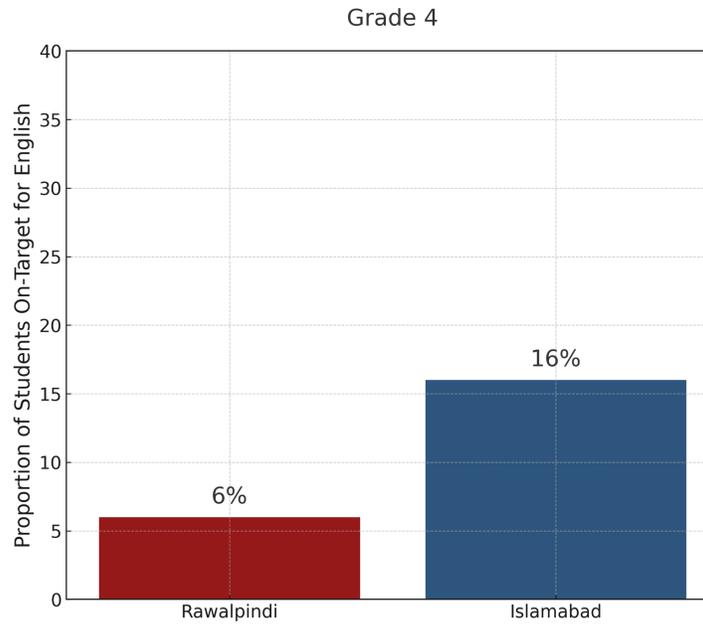


Figure G4

In Islamabad, 16% of grade 4 students were on-target for English. At the grade 4 level, this meant not only being able to read more complex sentences but also being able to tell their meaning in their mother tongue; in Rawalpindi, 6% of grade 4 students were on-target for English.

Urdu:

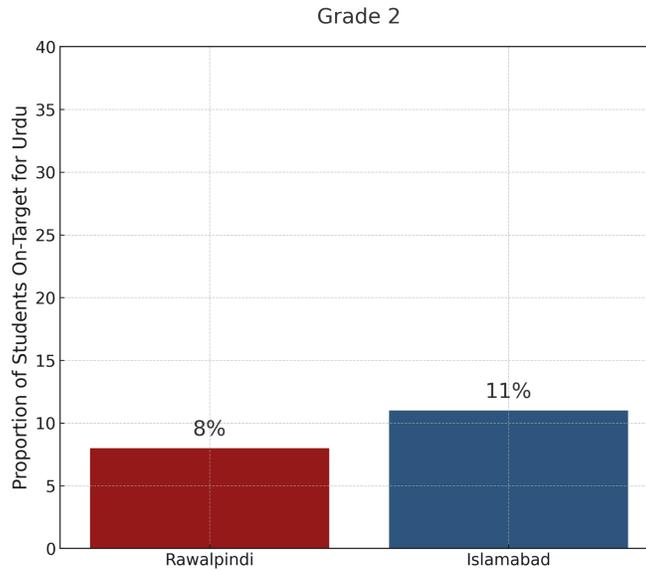


Figure G5

8% of Grade 2 students in Rawalpindi were on-target for Urdu, reflecting their ability to read simple sentences at their level and 11% of Grade 2 students in Islamabad were classified as on-target for Urdu.

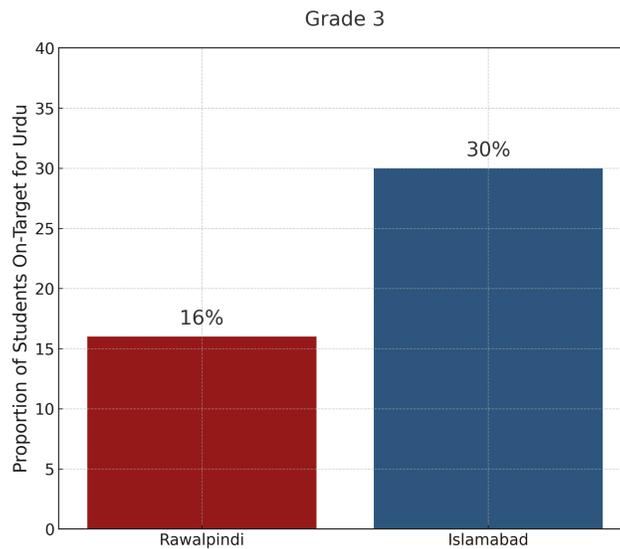


Figure G6

30% of Grade 3 students in Islamabad were on-target in Urdu and 16% of Grade 3 students in Rawalpindi were on-target in Urdu, reflecting their ability to fluently read a brief passage.

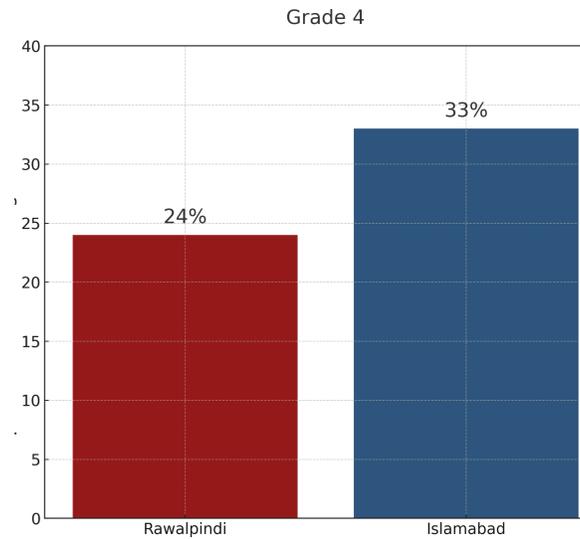


Figure G7

33% of Grade 4 students in Islamabad were on-target for Urdu, which meant being able to read and understand a brief comprehension passage at their level. On the other hand, 24% of Grade 4 students in Rawalpindi were on-target in Urdu.

Math:

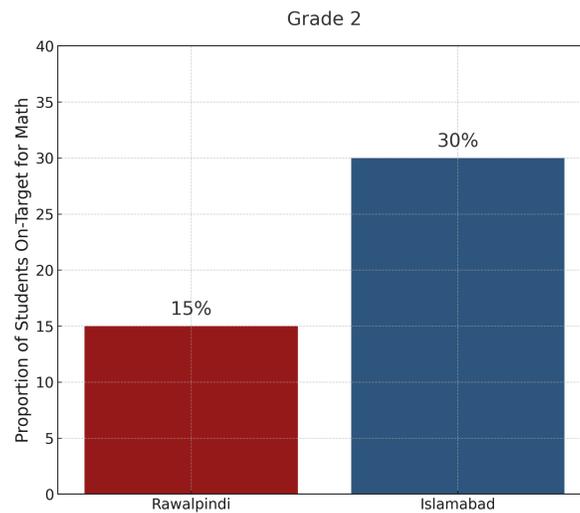


Figure G8

In Islamabad, 30% of the students were competent at their grade level which meant being able to perform basic subtraction and in Rawalpindi, 15% of the students were on target at their grade level.

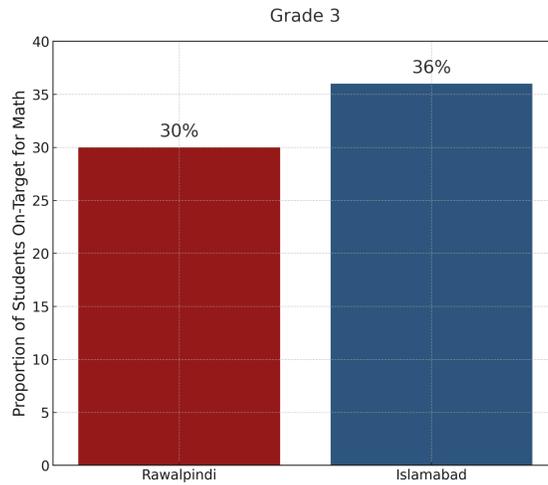


Figure G9

36% of Grade 3 students in Islamabad were on target, meaning they were able to successfully perform division and 30% of Grade 3 students in Rawalpindi were on target for Mathematics.

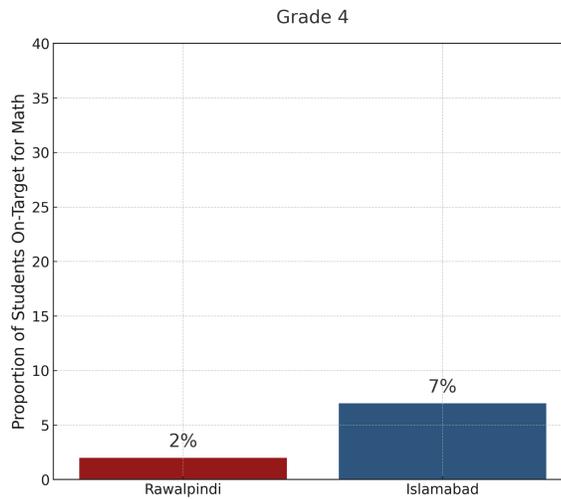


Figure G10

7% of Grade 4 students in Islamabad were on target, demonstrating their ability to solve more complex division problems while a smaller proportion of students met grade-level competency in Rawalpindi; 2% were on target.

Appendix H: Ordinal Regression Tables

Ordinal ASER Regression Explanations:

English:

The ordinal logistic regression results for ASER English performance ([table H1](#)) reveal varying treatment effects across grade levels. After controlling for student characteristics, school-level factors, and teacher qualifications, the treatment effect is not statistically significant for the overall sample (column 3) or for Grade 2 (column 6) students. However, significant positive effects emerge in the upper grades. For Grade 3 (column 9), students in the treatment group (Islamabad) have 1.688 times higher odds of being in a higher English proficiency category compared to control group students (Rawalpindi), though this effect is only marginally significant ($p < 0.10$). The treatment effect is strongest and most significant in Grade 4 (column 12), where treatment students have 2.084 times higher odds of achieving higher English proficiency levels compared to control students ($p < 0.05$).

The ordinal regression findings are consistent with the continuous variable regression results for English ASER scores. Both approaches show statistically insignificant effects for the overall sample and Grade 2, while demonstrating positive and significant treatment effects for Grades 3 and 4.

2. Maths:

The ordinal logistic regression results for ASER Mathematics performance ([table H2](#)) reveal statistically significant treatment effects at the overall and upper-grade levels. After accounting for student characteristics, school-level variables, and teacher qualifications, the treatment effect is significant overall (column 3), with treatment students (Islamabad) having 1.702 times higher odds of being in a higher math proficiency category compared to control students (Rawalpindi), significant at the 5% level. For Grade 2 (column 6), the treatment effect is statistically insignificant, suggesting minimal measurable differences in early grade numeracy outcomes. However, stronger effects appear in Grades 3 (column 9) and 4 (column 12). In Grade 3, treatment students exhibit 2.156 times higher odds of achieving superior performance levels ($p < 0.05$), while in Grade 4 the effect remains positive and marginally significant with an odds ratio of 1.665 ($p < 0.10$).

The ordinal regression findings align with the continuous variable regression results for mathematics. Both models show that treatment effects are insignificant for Grade 2 but positive and statistically meaningful for Grades 3 and 4.

3. Urdu

The ordinal logistic regression results for ASER Urdu performance ([table H3](#)) indicate statistically significant treatment effects at the overall and upper-grade levels. After controlling for student characteristics, school-level factors, and teacher qualifications, the treatment effect is positive and significant for the overall sample (column 3), with treatment students (Islamabad) having 1.571 times higher odds of being in a higher Urdu proficiency category compared to control students (Rawalpindi) ($p < 0.05$). No statistically significant effects are observed for Grades 2 (column 6) and 3 (column 9), suggesting that the intervention did not substantially influence early-grade language acquisition. However, the impact becomes prominent in Grade 4 (column 12), where treatment students exhibit 2.147 times higher odds of achieving higher Urdu proficiency levels than their counterparts ($p < 0.05$).

The ordinal regression findings align with the continuous variable regression results for ASER Urdu. Both models show significant positive treatment effects for the overall sample and Grade 4, while yielding insignificant effects for Grades 2 and 3.

Table H1: ASER Ordinal English Score - Odds Ratio

VARIABLES	Overall		Grade 2			Grade 3			Grade 4			
	1	2	3	4	5	6	7	8	9	10	11	12
Treatment	1.666* (0.449)	1.640* (0.435)	1.213 (0.292)	1.429 (0.613)	1.381 (0.588)	1.207 (0.487)	1.879** (0.576)	1.871** (0.563)	1.688* (0.501)	1.907* (0.644)	1.817* (0.599)	2.084** (0.720)
Female Student		1.207** (0.113)	1.200* (0.116)		1.662*** (0.308)	1.386* (0.263)		1.256 (0.204)	1.178 (0.197)		1.317* (0.215)	1.224 (0.204)
Urban			2.304*** (0.544)			2.761*** (1.056)			1.397 (0.385)			2.416*** (0.716)
Availability of drinking water			0.470 (0.446)			0.344 (0.511)			0.441 (0.452)			
Student - Teacher Ratio			0.998 (0.011)			1.019 (0.018)			1.006 (0.013)			0.998 (0.013)
Female Teacher			1.675** (0.362)			4.514*** (2.202)			3.980*** (1.356)			3.861*** (1.364)
Teacher qualification = 5, Intermediate (FA./F.Sc.)			0.316 (0.232)			1.430 (3.506)						
Teacher qualification = 7, Bachelors (B.A)/(BSc)			0.754 (0.623)			4.465 (12.475)			0.518 (0.455)			7.382* (8.518)
Teacher qualification = 8, Masters (M.A/MPhil)			1.559 (1.298)			11.573 (32.351)			1.190 (1.090)			9.827** (11.356)
Teacher qualification = 9, PHD			1.788 (1.816)						0.863 (1.146)			21.696** (32.938)
Experience level of teacher = 2,			0.801 (1.816)			4.303* (1.146)			0.890 (1.146)			1.952 (1.146)

Between 5-10 years			(0.184)			(3.750)			(0.402)			(0.993)
Experience level of teacher = 3, Between 10-15 years			0.351***			0.814			0.630			0.931
Experience level of teacher = 4, Between 15-20 years			(0.078)			(0.641)			(0.283)			(0.445)
Experience level of teacher = 5, Greater than 20 years			0.547***			1.503			0.873			1.193
			(0.111)			(1.130)			(0.368)			(0.525)
			1.100			2.985			1.655			1.129
Constant	3.039*	2.921**	(0.251)	14.283*	13.589**	(2.453)	3.443**	3.267**	(0.734)	4.830*	4.354*	(0.526)
	**	*	1.975***	**	*	4.341***	*	*	1.973***	**	**	2.220***
	(0.654)	(0.611)	(0.304)	(8.355)	(7.843)	(1.617)	(0.960)	(0.888)	(0.362)	(1.672)	(1.450)	(0.462)
Observations	2,591	2,591	2,487	866	866	831	870	870	835	855	855	821
Number of groups	68	68	67	68	68	65	68	68	66	68	68	66

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table H2: ASER Ordinal Mathematics Score - Odds Ratio

VARIABLES	Overall			Grade 2			Grade 3			Grade 4		
	1	2	3	4	5	6	7	8	9	10	11	12
Treatment	1.600**	1.610**	1.702**	1.854*	1.883*	1.094	1.638*	1.629	2.156**	1.634*	1.646*	1.665*
	(0.354)	(0.358)	(0.380)	(0.627)	(0.641)	(0.382)	(0.489)	(0.484)	(0.685)	(0.467)	(0.473)	(0.515)

Female Student	0.922	0.960	0.792	0.739*	1.205	1.225	0.950	0.963
	(0.084)	(0.091)	(0.132)	(0.124)	(0.192)	(0.210)	(0.154)	(0.163)
Urban		1.838***		2.138**		1.510		2.705***
		(0.393)		(0.650)		(0.415)		(0.724)
Availability of drinking water		1.308		0.131		0.420		3.795
		(1.124)		(0.169)		(0.443)		(4.602)
Student - Teacher Ratio		0.998		1.001		1.005		0.996
		(0.010)		(0.014)		(0.013)		(0.012)
Female Teacher		0.959		3.593***		2.212**		1.303
		(0.193)		(1.471)		(0.762)		(0.414)
Teacher qualification = 5, Intermediate (FA./F.Sc.)		0.350		0.736		0.303		
		(0.226)		(1.327)		(0.349)		
Teacher qualification = 6, Diploma		1.607		1.787		1.020		1.739
		(1.769)		(4.009)		(1.518)		(2.830)
Teacher qualification = 7, Bachelors (B.A)/(BSc)		0.802		0.648		0.406		1.387
		(0.534)		(1.211)		(0.345)		(1.711)
Teacher qualification = 8, Masters (M.A/MPhil)		1.104		1.029		0.763		1.825
		(0.738)		(1.923)		(0.685)		(2.230)
Experience level of teacher = 2, Between 5-10 years		3.411***		0.779		3.883**		2.994
		(0.743)		(0.449)		(2.291)		(2.238)
Experience level of teacher = 3, Between 10-15 years		1.165		0.616		0.845		1.088

Experience level of teacher = 4, Between 15-20 years			(0.259) 2.592***			(0.285) 1.447			(0.506) 1.671			(0.809) 2.281
Experience level of teacher = 5, Greater than 20 years			(0.552) 2.763***			(0.657) 1.872			(0.895) 2.454			(1.641) 2.063
Constant	2.058*** (0.297)	2.074*** (0.303)	(0.589) 1.785*** (0.232)	4.839*** (1.690)	4.963*** (1.758)	(0.882) 2.569*** (0.604)	3.263*** (0.885)	3.215*** (0.864)	(1.352) 2.036*** (0.394)	2.815*** (0.697)	2.848*** (0.719)	(1.475) 1.903*** (0.344)
Observations	2,591	2,591	2,458	866	866	844	870	870	811	855	855	803
Number of groups	68	68	67	68	68	67	68	68	65	68	68	65

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table H3: ASER Ordinal Urdu Score - Odds Ratio

VARIABLES	Overall			Grade 2			Grade 3			Grade 4		
	1	2	3	4	5	6	7	8	9	10	11	12
Treatment	0.837 (0.099)	0.824 (0.097)	0.810 (0.118)	1.272 (0.300)	1.252 (0.293)	1.031 (0.279)	0.838 (0.192)	0.825 (0.189)	0.715 (0.232)	0.636** (0.126)	0.620** (0.124)	0.731 (0.191)
Female Student		1.173* (0.099)	1.189* (0.106)		1.236 (0.219)	1.139 (0.206)		1.321* (0.199)	1.256 (0.199)		1.176 (0.175)	1.205 (0.190)
Urban			0.947			1.730**			0.680			0.786

Availability of drinking water	(0.120) 1.325	(0.386) 1.870	(0.169) 1.048	(0.174) 0.891
Student - Teacher Ratio	(0.657) 0.999	(2.060) 0.996	(0.933) 0.996	(1.041) 0.999
Female Teacher	(0.006) 1.043	(0.010) 1.673*	(0.012) 1.796*	(0.010) 0.789
Teacher qualification = 5, Intermediate (FA./F.Sc.)	(0.157) 1.120	(0.494) 0.734	(0.592) 1.133	(0.205) 2.304
Teacher qualification = 6, Diploma	(0.575) 0.721	(1.631) 1.215	(1.250) 0.583	(3.260)
Teacher qualification = 7, Bachelors (B.A)/(BSc)	(0.514) 1.042	(3.010) 1.189	(0.816) 1.060	0.690
Teacher qualification = 8, Masters (M.A/MPhil)	(0.511) 1.048	(2.675) 1.044	(0.852) 1.196	(0.596) 0.636
Teacher qualification = 9, PHD	(0.511) 2.722	(2.334)	(0.986) 2.319	(0.544) 2.563
Experience level of teacher = 2, Between 5-10 years	(1.830) 1.376	1.338	(2.811) 0.980	(3.018) 1.140
Experience level of teacher = 3, Between 10-15 years	(0.325) 1.085	(0.666) 1.831	(0.571) 1.003	(0.992) 0.778
Experience level of teacher = 4, Between 15-20 years	(0.242) 1.189	(0.868) 2.359**	(0.564) 1.031	(0.689) 0.785
	(0.247)	(0.989)	(0.518)	(0.665)

Experience level of teacher = 5, Greater than 20 years			1.516*			2.095*			1.940			0.854
			*									
			(0.304)			(0.905)			(0.923)			(0.711)
Constant	1.144*	1.142*	1.138*	1.671*	1.644*	1.291**	1.775*	1.780*	1.669*	1.432**	1.439**	1.325*
	**	**	**	**	**	**	**	**	**	*	*	**
	(0.046)	(0.045)	(0.046)	(0.289)	(0.281)	(0.165)	(0.281)	(0.282)	(0.250)	(0.168)	(0.170)	(0.137)
Observations	2,591	2,591	2,546	866	866	854	870	870	854	855	855	838
Number of groups	68	68	68	68	68	67	68	68	68	68	68	68

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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