1. METHODOLOGY

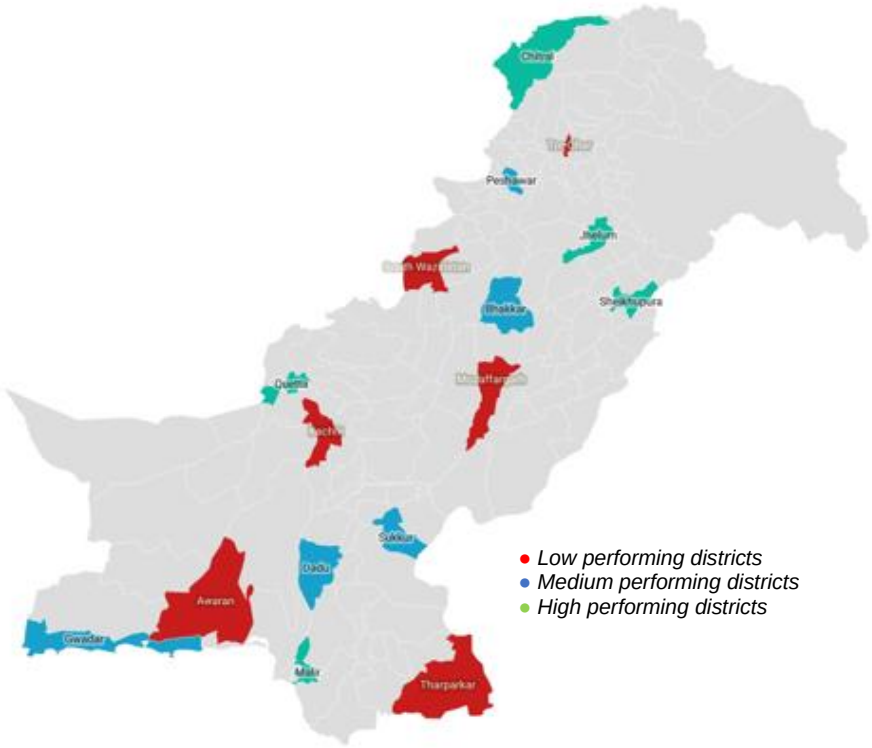
The study was designed as a household-based study with a mixed method data collection methodology with both quantitative and qualitative approaches.

1.1. Study field

The survey was conducted in 16 rural districts, four from each of Pakistan's four provinces.

The districts were sampled using Alif Ailaan's 2017 district rankings,[1] which were developed using ASER findings. Alif Ailaan created these ranking using three indicators: learning quality, retention and gender parity in education. For this study, the rankings were divided into three categories: low-performing districts, medium-performing districts and high-performing districts. One district was randomly selected from the high-performing category, while the remaining three were selected randomly from the medium- and low-performing categories. A condition was added here that no districts should border another, to ensure geographical spread.

Figure 1: Districts selected for study



[1] Alif Ailaan, 2017.

Province	Districts
Balochistan	Quetta Awaran Gwadar Bolan
Khyber Pakhtunkhwa (KP)	Peshawar South Waziristan Torghar Chitral
Punjab	Jhelum Bhakkar Muzaffargarh Sheikhupura
Sindh	Karachi-Malir Sukkur Tharparkar Dadu

1.2. Sampling

The total population of this survey consists of 16 rural districts of Pakistan.

The sampling frame was developed using a village list, data from the Population Census 2017 based on the total number of households, and the total population of each village in the list.

In view of the variability of key variables, population distribution and field resources, a sample of 600 households pertaining to 20 households from each village was used.

A two-stage sample design was adopted:

- First stage: 30 villages were selected using the provisional village directory of the 2017 census.
- Second stage: 20 households were selected in each of the 30 selected villages.

The allocation plan was as follows:

Districts	Villages per district	Households per village
16	30	20

The sample primary sampling units (PSUs) were considered sufficient to produce reliable estimates with a 5 per cent margin of error at 95 per cent confidence level. Villages in districts were taken as PSUs.

Sample PSUs were selected using the probability proportional to size (PPS) method. Every year, 20 villages from the previous year are retained and 10 new villages are added. Ten villages are dropped from the previous year's list and 10 new villages are added from

the population census village directory. The 10 new villages are also chosen using PPS. The 20 old villages and 10 new villages give us a “rotating panel” of villages, which generates a better estimate of changes.

Households were treated as secondary sampling units (SSUs). Based on actual households in each PSU, 20 households were selected. This was achieved by dividing each village into four parts. In each of the four parts, started from the central location and every fifth household on the left-hand side going in a circular fashion was picked, till five households are selected from each part.

One government school (mandatory) and one private school (optional) was selected from each village to assess school readiness for COVID-19.

1.3. Survey tools

This household-based study was conducted across 16 rural districts selected using two-stage stratified sampling. The questionnaire for households aimed to capture the impact that school closures in Pakistan have had on learning levels and enrolment. It is hypothesized that school closures would have made learning especially difficult for girls, who are engaged in household chores more than boys, as well as for children belonging to households where wealth, technology, and parental education as resources for home-based learning are less readily available.

Along with the household survey, one government and one private school from each village was also surveyed with regard to school facilities, teacher attendance and budget allocations, with a separate section added to monitor precautions undertaken during COVID-19 when alternate-day schooling was being observed.

Existing ASER tools for measuring learning including English, Urdu/Sindhi/Pashto and Arithmetic were adapted using the textbooks for 2020 for the current study. The International Common Assessment for Numeracy open-source tool,[2] which enables internationally comparable results, informed the development of the adapted Arithmetic tool. The adapted tools were shared with curriculum departments of all provinces for feedback and suggestions.

The instructions provided to the data collection team on identifying households and conducting the survey are provided in the Annex.

1.4. Survey process

The survey process began with provincial trainings. District-level partners were engaged to fully realize the objective of a “citizen-led” assessment. Three provincial trainings (one each for Punjab and KP and one for Sindh and Balochistan) were conducted for master trainers selected from the study districts. The master trainers were trained on what to do

[2] https://palnetwork.org/ican/

in a village, how to select households, how to introduce oneself, how to conduct the assessment and gather household data, and what to do in a school. The master trainers then conducted trainings in their home districts with 60 volunteer surveyors (two volunteers per village).

The survey was conducted across the 16 study districts between mid-March and mid-April 2021.

In each village, the volunteers began by familiarizing themselves with the village boundaries and its residential areas, talking to people and drawing a rough sketch of the village to help identify households for the survey. In the households, the respondent was usually the elder or the head of the household. Information on household indicators, children's educational status and parental education was obtained from the respondent. Children aged 5–16 years were engaged only for assessment, and a few additional questions on learning during COVID-19. Assessments were conducted one on one. The questionnaires and assessment protocols are provided in the Annex.

Data collection was monitored through two channels. Firstly, partner organizations were required to monitor their volunteers. Secondly, ITA monitored conducted random spot checks. The data submitted by volunteers was checked, first by the master trainers, and then by ITA monitors at the office. Only after these quality controls and checks was a booklet approved for data entry. Data entry was performed using a customized ASER software designed to facilitate quality data collection and entry.

Adherence to strict standards of research ethics was ensured. From pre-testing to training, data collection, monitoring, data analysis and report writing, standardized ethical protocols were followed. New questions were tested for sensitivity through internal discussions, consultations, and pre-testing before they were launched to the larger public, so any sensitive question was adequately amended or even removed. During the training sessions for enumerators, one session was devoted to research ethics. Enumerators also received training on how to introduce themselves to residents and how to conduct themselves, and on ensuring that all participating households understood that participation was completely voluntary, no harm will would come from refusing to participate, and that if they chose to participate, all identifying information would be kept fully confidential and the responses analysed collectively to estimate aggregates. This process was fully ensured during data collection monitoring. In addition to these standard protocols for the ASER survey, the training, and data collection in 2021 ensured that COVID-19 protocols were strictly followed.

Data analysis

Once data entry was completed, ASER research analysts performed data cleaning and analysis. Analysis was performed only on clean datasets using the STATA software.

The data analysis centred around the children's assessments which were analysed by age, by class, gender, institution, parental education, household wealth index, and the availability of and access to technology during school closures.

The findings from the 16 districts in this study were compared to those from the same 16 districts in previous ASER surveys. This enabled the research team to develop a comprehensive picture of the state of learning during COVID-19 and the impact of the pandemic on education in Pakistan.