Choosing Villages: Sampling Strategy

The purpose of the ASER 2008’s rapid assessment survey in rural areas is in twofold: (i) to get reliable estimates of the status of children’s schooling and basic learning (reading and arithmetic level) at the district level; and (ii) to measure the change in these basic learning and school statistics. Every year a core set of questions regarding schooling status and basic learning levels remains the same. However a set of new questions are added for exploring different dimensions of schooling and learning in the elementary stage. One government school in each sampled villages will be visited during ASER Survey.

The sampling strategy used will help to generate a representative picture of each district. The estimates obtained will then be aggregated (using appropriate weights) to the District, Province and National levels.

The villages were selected randomly using the village directory of the latest Census (1998). The sampling was done using the PPS (Probability Proportional to Size Sampling) technique. The PPS is a widely used standard sampling technique and is the appropriate technique to use when the sampling units are of different sizes. In our case, the sampling units are the villages. This method allows villages with larger populations to have a higher chance of being selected in the sample.

In ASER, every year, we will retain 20 villages from last year ASER survey and 10 new villages will be added. We will drop randomly drop 10 villages from ASER last year list, and 10 more villages will be added from the Population census village directory. The 10 new villages were also chosen using PPS. The 20 old villages and the 10 new villages will give us a “panel” of villages, which generates more precise estimates of changes. Since, one of the objectives of ASER is to measure the change in learning year to year basis, creating a panel is a more appropriate sampling strategy. Each district will receive a village list with appropriate block information along with the data from the Population Census on total number of households and total population. The village list will also specify which villages are from last year survey list, and which are new villages.

The village lists will be final and cannot be replaced. This is to maintain randomness of the sample to obtain reliable estimates.
What to do in the village?
(Instructions given to volunteers)

A list of villages for each district will be provided to each district team. It is VERY IMPORTANT that the district team visits ALL villages on the list given to them and surveys 20 randomly selected households.

HOW TO MAKE A MAP

Contact Village Elder: Introduce yourself to the Village Elder, Councilor or to other senior members of the Panchayat. Tell them about ASER. Get the approximate number of households in the village from the Councilor. Ask if he has a map of the village (usually the patwari has it).

Start mapping: To get to know the village, walk around and start mapping.

Talk to people: How many different hamlets/sections are in the village? Where are they located? What is the social composition of the households in each hamlet/section? What is the estimate of households in each hamlet/section? Tell them about ASER.

Rough map: It is often helpful to first draw all the roads or paths coming into the village and going out of the village. It helps to first draw a map on the ground so that people around you can see what is being done. Use the help of local people to show the main landmarks – mosques, river, road, school, bus-stop, baithak, shop etc. Mark the main roads/streets/paths through the village prominently on the map. If you can, mark the directions – north, south, east, and west.

Final map: Once everyone agrees that this map is a good representation of the village, and it matches with your experience of having walked around the whole village, then copy it on paper.

Marking and numbering sections on the map: Use the map sheet provided and fill out all the information provided.

O Village with hamlets:
If the village has hamlets, then mark the hamlets on the map and indicate the approximate number of households in each hamlet. If the village consists of more than 4 different hamlets, then make chits with numbers for each hamlet. Randomly pick 4 chits.
On the map, indicate which hamlets were randomly picked for surveying. If there are 4 or less hamlets, then we will go to all of these hamlets.
O Village with continuous habitation:
If the village is one continuous habitation then divide the entire village in 4 sections.
For each section, note the estimated number of households.

Verify all the information on the map with people in the village as you walk around.

**How to sample households**

If the village consists of more than 4 different hamlets, then make chits with numbers for each hamlet. Randomly pick 4 chits. If there are 4 or less hamlets, then we will go to all of these hamlets. If the village is one continuous habitation, then divide the entire village into four quadrants/sections. We will visit each quadrant/section. Show these sections on the village map.

In the entire village, information will be collected from 20 randomly selected households.

Go to each hamlet/section. Try to find the central point in that habitation. Stand facing dwellings in the center of the habitation. Visit every 5th dwelling from the left-hand side in the habitation (e.g. 5th house, 10th house, 15th house, etc). Get information about the household and children following instructions in the next section.

Multiple kitchens: Ask how many kitchens or ‘chulhas’ are there. If there is more than one kitchen, then randomly select any one of the kitchens in that household. After completing survey in this house, proceed to the next 5th house. (House in this case refers to every ‘door or entrance to the house’). In this selected household, ask about all children in the age group 3 to 16 who eat from the same kitchen.

House closed: If the selected dwelling is closed or if there is nobody at home, note that down on your compilation sheet as “house closed”. This household DOES NOT count as a surveyed household. Move to the next/adjacent open house. Continue until you have 5 households in each hamlet/section in which there were inhabitants.

No response: If a household refuses to participate, note that down on your compilation sheet as “No response”. However, as above, this household DOES NOT count as a surveyed household. Move on to the next house. Continue until you have 5 households in each hamlet/section in which not only were the inhabitants present, but they also participated in the survey.

No children: If there are no children or no children in the age group 3–16 in a household but there are inhabitants, INCLUDE THAT HOUSEHOLD. Take all the relevant information like the household number, name of the family head, age and education related information of the mothers, if any. Such a household WILL COUNT as one of the 5 surveyed households in each hamlet/section.
Stop after you have completed 5 households in each hamlet/section. If you have reached the end of the section before 5 households are sampled, go around again using the same every 5th household on the left-hand side rule. If a surveyed household gets selected again, then go to the next household. Continue the survey till you have 5 households in the section.

Now move to the next selected hamlet/quadrant. Follow the same process.

Make sure that you go to households ONLY when children are likely to be at home. This means that it should be a Saturday/Sunday or holiday.
Instructions:
1. Find central point in a hamlet. Stand facing the dwellings.
2. Survey every 5th HH (household) occurring on the left hand side.
3. In case of a locked HH or if there is nobody at home, note that down as ‘house closed’ and move to the next open house.
4. If a HH refuses to participate, note that down as ‘no response’ and move to the next HH.
5. If there are no children or no children in the age group of 3 to 16 in a HH but there are inhabitants, include that HH.
6. If you reach the end of the hamlet before five (5) HHs are sampled, go around again using the “every 5th HH rule”.

What to do in each household

IN EACH SAMPLED DWELLING: We will note information about children who live in the household on a regular basis.

Children 3 to 6: On the Household sheet, note down child’s name, age, whether they are attending Kachi or any kind of pre-school center. WE WILL NOT TEST CHILDREN AGED 3. Note down the mother’s name as well. If the child is not going to any Kachi/preschool, etc., note it down under the “Not going to Pre-school” section.

Children 4 to 16: On the Household sheet, note down child’s name, age and all other details. ALL CHILDREN IN THIS AGE GROUP (4-16) WILL BE TESTED IN BASIC READING AND BASIC ARITHMETIC. We know that younger children will not be able to read much or do sums but still follow the same process for all children so as to keep the process uniform. Ensure that the child is comfortable before and during the test and that sufficient time is given to each child.

NOTE: FOR CHILDREN AGED 3-6, WE WILL ASK IF THEY ARE ATTENDING PRESCHOOL OR NOT.

WE WILL TEST ALL CHILDREN AGED 4-16.

Mothers: In the section of the sheet on mothers, list the information about all mothers living in the household. Note down mother’s age, whether this person has attended school or not and up to what class they have studied. If the mother is present in the household then talk to her directly to get information from her. Please ensure that the mother’s data is recorded for every child (each row).

Other things to remember:
Non-resident children: Do not survey children who are visiting their relatives and friends in the sampled village. These children may be tested but make sure they are not recorded. Ask members of the household as well as neighbors about who all live in the household on a regular basis.

Older children: Often older girls and boys (in the age group 11 to 16) may not be thought of as children. Be sensitive to this issue and therefore avoid using words like “children”. Probe about who all live in the household to make sure that nobody that is in our age group gets left out. Further, often such children are busy working in the household or in the fields. Ask family members to call them so that you can speak to them directly. If they do not come immediately, mark that household and revisit it once you are done surveying the other households.

Children out of the village: If there are children in the family but not in the village at present, do not take their details.

Many children may come up to you and want to be included out of curiosity. Do not discourage children who want to be tested. You can interact with them. But concentrate on the fact that data must be noted down ONLY for children from households that have been randomly selected.

Make sure that each volunteer is neatly dressed, talks politely and is able to talk about ASER Pakistan 2008. Explain what you are doing and why. Tell people about ASER. Most of all enjoy yourself and make sure that children are enjoying themselves also.

Remember to thank people after you finish surveying the household.

What to do in a school

General instructions

Visit any government school in the village with classes from Class 1 to 8. If there is no such school in the village which has classes from 1 to 8, then from the remaining government schools visit the school with the highest enrolment in class 1 to 4/5. In the top box of the Observation Sheet, tick according to the school type.

- Note the time of entry into the school.
- Meet the Head Master (if the Head Master (HM) is absent, then meet the senior most teacher of the school).
- When at the school, ask the Head Master for the Enrolment register or any official document on the enrolment in that school.
- Also note information on distance from district headquarters and if there is a bus-stop nearby.

WHAT TO DO

Section 1—Children’s Enrolment & Attendance

ASK for the registers of all the standards and fill in the enrolment. If a standard/class has many sections, then randomly choose any one section.

Then MOVE AROUND to the classes/areas where children are seated and take down their attendance class-wise by counting them YOURSELF. You may need to seek help from the
teachers to distinguish children class-wise as they are normally found seated in mixed groups. In such a case, ask children from each standard to raise their hands. Count the number of raised hands and accordingly fill the same in the observation sheet, class-wise. Please note that only children who are physically present in the class while you are counting should be included.

Section 2—Teachers
Ask the HM and note down the number of teachers appointed and present as well as the number absent. Please note that the number of regular government teachers does not include the Head Master.
If the school has para-teachers or teachers appointed by the School Management Committee (SMC), mark that separately.
Thereafter note how many of the absent teachers, if any, are absent due to official duty/training.
Also ask each category of teachers (Head Master, regular teachers, para-teachers) whether they reside in the village or a neighbouring village. Count the number of teachers residing in the same visited village/neighbouring villages and write this number in the observation sheet.

Section 3—School Grant Information
For this section, note down information for 2007 and 2008.
The Head Master should be asked this section. In the absence of the Head Master, ask another person this section and tick the designation of the person being asked this question. (Head Master/ Regular teacher/ Para teacher)
Ask if the school got a grant. If yes, note down the amount and when this grant was received.
If the person answering this section says that he/she is going to receive the grant in the future, then mark “no”.
Thereafter go down the list and ask if money was spent on each item or not for both years.
Mark “yes” or “no” accordingly.
Ask the person answering this section about the grant very politely. If the person refuses to answer or is hesitant to answer this section, then do not force the person and move on to the next section. The remaining questions of this section should be left BLANK.

Section 4—Class Room Observations
This section is for Std. 2 and Std. 4 only. If there is more than one section for a class, then randomly choose any one.
OBSERVE the seating arrangement of children (are they in mixed groups or sitting class-wise) and fill accordingly.
OBSERVE if children have their textbooks, a pen/pencil and a notebook. Ask the children to show these items to make a correct assessment.
Ask the teacher if the teacher follows a timetable? If yes, ask the teacher to show it to you. If not, mark “no”. Based on the timetable, assess if the time table was followed at that particular time.
Thereafter assess if the subject being taught at the time of the observation matches with the subject mentioned in the timetable.
Apart from the textbooks, OBSERVE if there is any other supplementary material (e.g. Books, Charts on the wall, Board Games, etc.) in the room.

Section 5—Infrastructure in School
OBSERVE the number of classrooms and if they are being used for children. Similarly OBSERVE if there is a hand pump (see if water is potable), toilet (see if toilet is useable) and a mid-day meal (see if there is any evidence of the same). Ask the teacher if the school has library books. If it does, ask the teacher or the students to show you the library books.

Section 6 – General Comments and Observations
Write any general comments / observations that you noted while observing the school.

Note the time of exit from the school.

TEST AND TESTING

Developing the ASER Tools

ASER Tools are developed by keeping the objectives of ASER in mind that “ASER is primarily a local citizens attempt to understand the status of schooling and basic learning of the children in his/her district.” The tools are designed to achieving this objective. Expert opinion was required prior to the making of the tools. So, tools are reviewed and shared with individuals and institutions e.g. University of Education Lahore, Institute of Education and Research (IER), Punjab University and Punjab Examination Commission (PEC).

ASER tools have been developed to assess children’s ability to read and to do simple arithmetic at the grade 2 levels. In developing ASER tools, it is ensured that:

- Tools are comparable across languages; that all tools are the same in every language (English, Urdu, Sindhi)
- Tools and tasks are simple and clear, so that a common man should be able to understand the tools used in survey.
- Tools are equivalent to state textbooks for Grade 1 and 2 in terms of content which is crossed checked.
- Pilot-Testing is done across the country before finalization.
- All surveyors practice a field day in a rural area in all districts during training held at national, provincial and district levels.
- Same tasks are given to all children between ages 4 to 16.
- Core set of tasks / tools (English & Arithmetic) used in ASER India 2007 survey were followed and some additional language tools are added such as Urdu and Sindhi language tools.

Piloting ASER Tools

Development of standardize Tools, especially new tools (Urdu), a phase of field testing is vital. The piloting is essential in terms to assess the use-ability of the tools, follow a line of investigation with a number of different tasks and grading instruction also. Pilot testing was conducted and the results were reviewed accordingly.

From September to October 2008, pilots were done in different districts of the country (all 4 provinces) not only to see how children in different parts of the country respond to different
tasks but also to judge the compatibility of volunteers to administer the tests. ASER tools are used by hundreds of volunteers and thousands of children are assessed.

After pilot-testing tools was reviewed again for constraints. After incorporating all these changes, survey tools are finalized.

**Assessment tools & their focus:**

**Reading Tools:**

Reading tools are developed in three languages for ASER. Children can choose language of their own choice for learning test. Therefore, the ASER team has a set of tools in any basic language that the child is likely to know. ASER tools were developed in following languages:

- Urdu
- English
- Sindhi

There are four levels used in tools for assessing reading which are as following:

1. **Alphabets**

   This includes a set of 10 different commonly used alphabets.

2. **Simple Words**

   This includes a list of 10 different words (nouns and verbs). All words have 2 consonants and one or two vowels. All the words in word list are checked off against our grade 1 textbooks to make sure that these words are similar to those words found in textbooks and commonly used.

3. **Easy Paragraph**

   This is a set of 4 sentences with 4-5 words in each sentence: 2 easy paragraphs in each sample. Care is taken to ensure that sentences are connected to each other. The words and sentence structure used in reading tools are similar to those in the grade 1 textbooks of the country. The words used in paragraphs are easy and common in daily usage.

4. **Simple Story**
These are 8-10 sentence long stories (approx 60-65 words) with simple Vocabulary and sentence structure. Words and sentences used in story are comparable to grade 2 level textbooks of the state.

**STEPS FOR ASSESSING READING**

<table>
<thead>
<tr>
<th>Child’s reading level</th>
<th><strong>How to test and what criteria to use for categorizing children</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Story reading (Std 2 level text)</td>
<td><strong>If the child reads the story fluently, with ease and speed, mark her as a “story level” child (or a child who can read Std 2 level text).</strong></td>
</tr>
</tbody>
</table>
| Easy paragraph (Std 1 level text) | **Ask the child to read any easy paragraph.**  
**Listen carefully when the child reads.**  
**The child may read slowly. She may stop frequently. But as long as she is reading the text like she is reading a sentence rather than a STRING OF WORDS, categorize her as a “para level” child (or a child who can read Std 1 level text).**  
**Once you have decided that this child is a “para” level child, ask the child to read the story.**  
**If a child is reading very slowly and stops between words for a long time, or if she is reading the text like it is one word after another, and therefore not reading the text like she is reading a sentence, then she is not a “para level” child. Then you should take the child one level lower and ask her to read words.** |
| Words (Set of easy words) | **Ask the child to read any 5 words from the word list. Let the child choose the words herself. If she does not choose, then point out the words to her. If she can correctly read at least 4 out of the 5 words with ease, then ask her to try to read the easy paragraph again. She will be marked as a “word level” child if she can correctly read words but is still struggling with the easy paragraph.**  
**If she cannot correctly read at least 4 out of 5 words she chooses, then show her the list of letters.** |
Letter (Set of common letters)  • Ask the child to read any 5 letters from the letters list. Let the child choose the letters herself. If she does not choose, then point out letters to her. If she can correctly recognize at least 4 out of 5 letters with ease, then show her the list of words again. She will be marked as a “letter level” child if she can read 4 out of 5 letters but cannot read words.

Nothing  • Child cannot recognize even 4 out of 5 common letters from the letters list.

Note: Children, who took basic reading test in English, need not to be tested in Urdu and vice versa.

**Arithmetic Tools:**

There are four categories used in arithmetic tool as same as in reading tool, for assessing arithmetic skills of children which are as following:

1. **Number recognition 1 to 9:** randomly chosen numbers from 1 to 9.
2. **Number recognition 11 to 99:** randomly chosen numbers from 11 to 99.
3. **Subtraction:**
   - 2 digits subtraction problems which must have borrowing.
   - Not put any number that have zero in the unit place.
4. **Division:**
   - 3 digit by 1 digit division problems
   - Keep the number “divisors”
   - Between 4 and 8 not include digit 5.

**STEPS FOR ASSESSING BASIC ARITHMETIC SKILLS**

<table>
<thead>
<tr>
<th>Child’s Arithmetic level</th>
<th>• How to test and what criteria to use for categorizing children</th>
</tr>
</thead>
</table>
| Division: 3 digit by 1 digit | • Show the child the division problems. She can choose one to try. If not, then you can pick one. Ask her to tell you what the problem is and what she has to do.  
• Then write the problem on a piece of paper and ask her to solve it.  
• Watch what she does.  
• If she is able to follow the right method and come to the right answer, then mark her as a “division child.”  
• If she is unable to do one problem, give her another problem from the sheet.  
• If she is unable to do either, mark her as a “subtraction child” |
### Subtraction: 2 digit borrowing

- Show the child the subtraction problems. She can choose one. If not, then you can pick one.
- Show the child the number on the top row of any problem and ask what that is (e.g., 56). If the child says 5 and 6, ask her again to say what the number is when the numbers are together. Probe to see if she can recognize and identify 2 digit numbers. Show her the number on the next line and do the same. Point to the minus sign and ask “what do you have to do”. Once you have established that the child knows the numbers and knows what to do, then write down the sum on a piece of paper yourself or ask the child to copy it on a piece of paper and ask her to solve it. Watch while she solves it. See if she correctly moves from the units column to the tens column and solves the problem.
- Give her another similar problem from the sums on the page.
- If she correctly does both then show her the division problem.
- If she does not want to attempt the division problem or is unable to do it, then mark the child as a “subtraction” child.
- If she cannot correctly do the subtraction problems then give her the number recognition task described below.

### Number recognition: 11-99

- Point one by one to at least 5 numbers. Child can also choose them.
- Ask her to identify the numbers.
- If she can correctly identify at least 4 out of 5 numbers, then mark her “Number Recognize 11 - 99” child. If not then give her the number recognition 1 to 9 task.

### Number recognition: 1 to 9

- Point one by one to at least 5 numbers. Child can also choose them.
- Ask her to identify the numbers.
- If she can correctly identify at least 4 out of 5 numbers then mark her “Number Recognize 1-9” child.