Annual Status of Education Report (ASER) and National Achievement Survey (NAS): different metrics with a common goal

Overview

The economic and social climate of the globe is changing faster than ever. Through a series of 'global conversations' UN has put many goals/targets at the focal point of action for governments and citizens. Education is a key goal in the list of Sustainable Development Goals. With SDG 4[1], the international community has pledged to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." The World Bank's World Development Report 2018[2] warns of a 'learning crisis' in global education. The report offers three policy recommendations: assess learning, so that it becomes measurable goal; make schools work for all children; and mobilize everyone who has stakes in learning.[3]

In India, NITI Aayog's vision and strategy document, Three-year Action Agenda (2017-18 to 2019-20),[4] seeks to orient the system towards outcomes and implement a time-bound program with focus on ensuring that all children attain basic skills. Focusing on quality education, the central RTE (Right of Children to Free and Compulsory Education Act 2009)[5] rules have been amended in 2017 to include class-wise, subject-wise learning outcomes for all elementary classes and also prepare guidelines for putting into practice Continuous and Comprehensive Evaluation, to achieve the defined learning outcomes.

All of this indicates a clear global and national mandate for quality education, in general, and for improving learning outcomes in particular.

In India, there are two large-scale nationwide learning assessments currently conducted periodically to track children's learning outcomes at the elementary stage. Pratham/ASER Centre's Annual Status of Education Report (ASER) has been published annually from 2005 to 2014, in 2016 and now in 2018.[6] The National Council for Educational Research and Training (NCERT) has conducted National Achievement Survey (NAS) periodically since 2001 for Classes III, V, VIII and X. NAS was most recently conducted in 2017, with major changes in scope, scale, methodology, and reporting, as compared to earlier versions.

The table below compares the implementation cycles of NAS and ASER:

National Achievement Survey (NCERT)

Class / Cycle	Class III	Class IV	Class VIII	Domains assessed
Cycle 1	2003-04	2001-02	2002-03	Class 3- Language, Maths Class 5- Language, Math, EVS Class 8- Language, Math, Science, Social studies
Cycle 2	2007-08	2005-06	2007-08	
Cycle 3	20012-13	2009-11	2010-13	
Cycle 4	2015-16	2014-15	2015-16	
NAS 2017	November 2017			
NAS 2018	Not conducted			

ASER Survey

Year	Age group[7]	Domains assessed
2005-2014	5-16	Basic reading, arithmetic and English (2007, 2009, 2012, and 2014)
2015	Not conducted	
2016	5-16	Basic reading, arithmetic and English
2017[8]	14-18	Application of basic arithmetic skills to everyday tasks
2018	5-16	Basic reading and arithmetic + Bonus tool (age 14-16)

[1] https://www.un.org/sustainabledevelopment/sustainable-development-goals/
[2] http://www.worldbank.org/en/news/press-release/2017/09/26/world-bank-warns-of-learning-crisis-in-global-education
[3] The Global Partnership for Education (GPE2020) - the global fund solely dedicated to education in developing countries is committed to upholding education as a public good, a human right, and an enabler of other rights. It is essential for peace, tolerance, human fulfillment, and sustainable development. It also believes that it is essential to focus resources on securing learning, equity, and inclusion for the most marginalized children and youth, including those affected by fragility and conflict. GPE 2020 is a five-year strategic plan commencing January 1, 2016 and ending December 31, 2020. It aligns with the vision and mission of the Global Goals for Sustainable Development.
[4] http://niti.gov.in/writereaddata/files/coop/ActionPlan.pdf
[5] http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/RTE_Amendment_2017.pdf
[6] In 2015, ASER was conducted only in two states - Punjab and Maharashtra. In 2017, ASER was conducted for youth age 14-18 in 28 districts of the country. See http://www.asercentre.org/Keywords/p/276.html
[7] Since ASER is a household survey, a representative sample of children of the specific age groups were assessed. These children could be enrolled in various grades in government, private or other kinds of schools. There could also be children of that age gorup who were not enrolled in school.
[8] http://www.asercentre.org/Keywords/p/305.html

Both ASER and NAS are large scale and national assessments. Although, they have a common overarching goal to measure learning outcomes in elementary grades, there are many important differences from objective to methodology to procedures. Since the purpose of each exercise is different, consequently, key elements like sampling, location of testing, test design, questionnaire content, methodology, and timeframe of assessment are also different. Results of NAS and ASER are computed, reported, and disseminated very differently. Since estimates generated by ASER and NAS neither cover the same population nor assess the same content, their results are not comparable.

However, it is worth highlighting that both ASER[9] and NAS[10] results over the years have brought the 'learning crisis' at the forefront of policy discussion and debate in India. For example, the Economic Survey of India has cited ASER results for several years. In fact, in 2017-18, they generated a "learning poverty headcount" and a "learning poverty gap".[11] NITI Aayog's Three-year Action Agenda (2017-18 to 2019-20), focuses on the urgent need for improving learning outcomes and reiterates this point using both ASER and NAS data.[12]

Key Features of ASER and NAS

Since the data on learning levels from ASER and NAS surveys have been used in policy formulation and advocacy, it is crucial to understand the key features of the two surveys. This part of the note summarizes and makes comparisons between ASER and NAS (for elementary grades). It is based on ASER 2005-2018[13] and a set of NAS documents available in the public domain[14] as well as official press releases pertaining to elementary education.[15] For NAS, this note largely focusses on NAS 2017 which had a number of key features that were improvements over previous NAS rounds.

Institutions

ASER is facilitated by Pratham, a non-governmental organization (NGO), and carried out by partner institutions in almost all rural districts of the country. These partner institutions include colleges, universities, District Institutes of Education and Training (DIETs), teacher training institutes, NGOs, and other types of organizations.

While many government institutions participate in conducting ASER, no funds are accepted from any government source. External evaluations and process audits of the ASER methodology are conducted from time to time by independent organizations.

NAS is carried out by the Educational Survey Division (ESD) of the NCERT. The design and implementation of NAS 2017 included in its ambit school leaders, teachers, and a network of officials at the cluster, block, DIET, State Council of Educational Research and Training (SCERT) and Directorates of Education in various states and union territories.[16]

Field investigators from outside the government education system were engaged to conduct the assessment, with preference given to DIET students. A monitoring team comprising observers from inter-ministerial departments was tasked with observing the implementation of the survey.[17]

[9] See http://www.asercentre.org/Keywords/p/236.html

[10] Based on comparison of state-wise results of NAS - Class V (Cycles 3 and 4), it was found that 19 out of 31 states/union territories which participated in both cycles show a significant decline in learning outcomes in language and math. The steepest declines were observed in Uttar Pradesh, Madhya Pradesh, and Maharashtra. Learning levels in both subjects were found to be stagnant in 10 states/union territories, while significant improvement was observed only in Andaman and Nicobar Islands and Puducherry.

[11] The Economic survey 2017-18 used ASER data to estimate a Learning Poverty Headcount (LPC) as well as a Learning Poverty Gap (LPG). "….on math and reading, India's absolute LPC is between 40 and 50 percent: in other words, roughly 40-50 percent of children in rural India in grades 3 to 8 cannot meet the fairly basic learning standard ….". The LPC simply measures the number of children who do not meet the basic learning benchmark, whereas the LPG additionally takes into account how far each student is from the benchmark.

[12] NITI Aayog's Three-year Action Agenda (2017-18 to 2019-20), reiterates this using both ASER and NAS data. "…the proportion of children in grade III who can read at least a grade I level text dropped from 50.6 in 2008 to 40.3 in 2014, before increasing marginally to 42.5 in 2016 according to Pratham's Annual Status of Education Report (ASER) data. The proportion of children in grade III who can do at least subtraction fell from 39% in 2008 to 25.4% in 2014, and again increased slightly to 27.7% in 2016. Poor learning outcomes are reflected in multiple other sources as well, including the National Achievement Survey (NAS), which found worse results in Class V Cycle 4 (2015) compared to Cycle 3(2012)…."

[13] See www.asercentre.org for ASER reports from 2005 to 2018, and related documentation.

[14] While NAS reports, communication documents and sample items have been published by NCERT (available at http://www.ncert.nic.in/programmes/education_survey/Education_survey.html), assessment tools and technical specifications relating to NAS 2017 are not available in the public domain as of December, 2018.

[15] Two cycles of NAS for Class X have been conducted in 2014-15 and 2018. However, these have not been considered in this note, as they do not pertain to elementary education.

[16] MHRD Press Release (26-07-2018): http://pib.nic.in/newsite/PrintRelease.aspx?relid=181119

[17] NAS 2017: Operational Guidelines cum Training Manual, retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/Operational_Guidelines_Training_Manual.pdf

Objectives

ASER's objective is to provide annual, reliable, current, and actionable evidence relating to enrollment and basic learning outcomes of children in rural India. It is designed to generate district, state, and national level estimates of children's schooling status for all children aged 3-16 years, and estimates of basic reading and arithmetic ability for all children aged 5-16 years.

ASER is designed as a household survey so as to include all children: those enrolled in government schools, private schools, other schools, as well as those not enrolled in school or not attending school on the day of the survey. It is a foundational assessment or "floor test". ASER 2018 also included additional "bonus" questions on application of basic arithmetic skills to daily tasks, for the age group 14-16 years.

The major objective of conducting NAS is to have a system level reflection of the effectiveness of the government education system in India.[18] The findings from NAS 2017 are intended to guide education policy, planning and implementation at national, state, district, and classroom levels for improving learning levels of students and bringing about qualitative improvements.[19]

NAS 2017 is designed as a school-based survey of students enrolled in Std III, V and VIII in government and government-aided schools. It is a grade-level assessment based on class-wise, subject-wise learning outcomes developed by NCERT.[20] The attainment of learning outcomes in terms of competencies was tested. These learning outcomes have been incorporated into the central rules for the Right to Education (RTE) Act[21] in 2017, to serve as a guideline for states.

Sampling and coverage

ASER aims to reach all rural districts each year. It is a nationwide sample-based household survey. It employs a two-stage sample design. At the first stage, 30 villages are selected in each rural district from the Census[22] directory using Probability Proportional to Size (PPS).[23] In the second stage, 20 households are randomly selected in each village. Volunteers are provided with standardized instructions on sampling of households from various sections/hamlets within a village.

All children aged 3-16 years who regularly reside in the sampled households are surveyed. Of these, all children aged 5-16 years are assessed.[24]

ASER 2018 reached 354,944 households in 596 districts. 546,527 children aged 3-16 years were surveyed, of which 390,830 children aged 5-16 years were assessed using the ASER reading tool and 389,496 children were assessed using the ASER arithmetic tool. 62,245 children aged 14-16 years were assessed using the ASER bonus tool.

ASER also collects background information on parents, households, and village characteristics. One government school in each sampled village is also visited during the

NAS covers rural as well as urban districts of India. NAS 2017 is a school-based nation-wide survey and focuses on Std III, V and VIII. While earlier versions of NAS involved sampling of districts at the state level, districts served as the basic sampling unit in NAS 2017 which included nearly all districts of India. In each district, a fixed number of schools[25] for each class were sampled using the Probability Proportional to Size (PPS) method. Within each school, 30 students from any one section of the class were selected through random sampling.

Although the issue of students' attendance is not explicitly addressed in NAS documents, the sampling procedure at the school level[26] seems to suggest that if a sampled child was not present on the day of the survey, she would be replaced by one who was, resulting in a self-selection bias.

NAS 2017 was implemented in 701 districts across 36 states/union territories. It covered a total of 2,121,173 students from Std III, V and VIII. A total of 116,534 schools were surveyed. Previous NAS surveys had a much smaller sample size. Cycle 3 of NAS included around 4.2 lac students from elementary grades.[27]

[18] Post NAS Interventions: Communication and Understanding of the District Report Cards, 2017 (p.2), retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/DRC_report.pdf
[19] MHRD Press Release (12-11-2017): http://pib.nic.in/newsite/PrintRelease.aspx?relid=173462
[20] NAS 2017: District Workshop Module, retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/NAS_District_Workshop_Module.pdf
[21] MHRD Press Release (02-04-2018): http://pib.nic.in/newsite/PrintRelease.aspx?relid=178287
[22] Census 2001 frame was used for ASER surveys 2005-14 and Census 2011 frame was used for ASER 2016 onwards.
[23] Except in ASER 2005, wherein 20 villages were sampled in each rural district based on PPS.
[24] For more details on the ASER sampling methodology, see http://www.asercentre.org/overview/basic/pack/history/etc/p/56.html
[25] 60 schools per district for Class III and V; and 50 schools per district for Class VIII
[26] NAS 2017: Operational Guidelines-cum Training Manual, retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/Operational_Guidelines_Training_Manual.pdf
[27] http://www.ncert.nic.in/programmes/nas/nas.html

ASER survey to collect information about school characteristics such as infrastructure, student attendance, School Management Committee (SMC) and finances. In 2018, 15,998 government schools were visited by ASER volunteers.

NAS 2017 also collected background information on schools, teachers and students with the help of separate questionnaires. A total of 287,393 teachers were covered during NAS 2017.

Tools and testing

ASER assesses basic reading and arithmetic ability, which are foundational skills for language comprehension and mathematics.[28] Basic reading ability implies the acquisition of letter knowledge, ability to decode common everyday high-frequency words and to fluently read simple passages. Similarly, basic arithmetic implies the ability to recognize numbers and perform basic operations such as subtraction and division. Assessment tasks are developed based on analysis of state textbooks and curriculum framework documents.

All children aged 5-16 years are administered the same basic tests, regardless of age, grade or schooling status. ASER tools are designed to assess mastery of these foundational skills and are not intended to differentiate within each mastery level.[29] The highest level tested in reading is the ability to fluently read a Std II level text. The highest level tested in arithmetic is the ability to correctly do a 3-digit by 1-digit division question, usually taught in Std III or IV.

Additionally, ASER 2018 also included "bonus" questions on application of basic arithmetic skills to daily tasks, for the age group 14-16 years.

NAS assesses grade-level competencies.

Students are administered grade-specific tests based on class-wise, subject-wise learning outcomes developed by NCERT. These learning outcomes have also been incorporated into the central rules for the Right to Education (RTE) Act in 2017, to serve as a guideline to states. The range of learning outcomes assessed by NAS 2017 varies with class and subject.

The test instruments of present National Achievement Survey (2017) are competency-based and linked to learning outcomes recently developed by NCERT[30]. NCERT developed two sets of test forms for each class, and the duration of the NAS test was roughly 2 hours. Students of Std III and V were required to attempt 45 questions on language, mathematics, and EVS. Students of Std VIII were required to attempt 60 questions on language, mathematics, science, and social science.[31]

While limited information is available regarding the tool design methodology and technical specifications of the NAS assessment, NCERT states that "internationally accepted technical standards and practices are being adhered to while planning, designing, and implementing of NAS to ensure its robustness and sustainability."[32]

Test administration

ASER is a household survey. Children are tested at home. ASER reading and arithmetic assessments are administered orally, one on one. All children aged 5-16 years who reside regularly in the sampled household are given the same test, regardless of schooling status, age, or grade. Within each household, different children are administered different samples of the testing tool. The highest level of proficiency in reading and arithmetic is recorded.

NAS is conducted in school (government and government-aided schools). Students of different classes are given grade-specific tests in different subjects. Following an orientation by the Field Investigator, students answer a set of multiple choice questions and record their response in an Optical Mark Recognition (OMR) sheet. While the test for Std VIII was entirely pen-and-paper based, the test for Std III and Class V included an oral component, with questions and options being read aloud (not the reading passage) by Field Investigators.[33]

[28] Additionally, ASER has periodically included elements of assessment relating to time, money, measurement, problem solving, listening comprehension, and English reading and comprehension.
[29] ASER 2006 and 2007 included testing of reading and comprehension. The data indicates very high correlation between the ability to read a passage fluently and the ability to comprehend it. See http://img.asercentre.org/docs/Publications/ASER%20Reports/ASER%202014/Articles/ashokmutumsavitribobdeketanverma.pdf
[30] http://www.ncert.nic.in/programmes/NAS/pdf/DRC_report.pdf
[31] NAS 2017: Module for Test Administration (Field Investigator), retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/Module_Administration_Field_Investigators.pdf
[32] NAS 2017: Operational Guidelines-cum Training Manual, retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/Operational_Guidelines_Training_Manual.pdf
[33] NAS 2017: Module for Test Administration (Field Investigator), retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/Module_Administration_Field_Investigators.pdf

Process implementation and monitoring

The **ASER** implementation process begins with a national workshop attended by the ASER central team and state teams. Subsequently, state level trainings are held in each state wherein the state ASER team trains Master Trainers from each district. The Master Trainers in turn conduct district level trainings for volunteers from local partner organizations such as colleges, universities, teacher training institutes, DIETs,[34] NGOs, and others. Volunteers receive intensive training over 2-3 days in preparation for the survey, including a day of practice in the field. They are then paired into teams and tasked with surveying the sampled villages. After conducting the survey, volunteers submit the survey booklets to Master Trainers for their districts.

ASER devotes considerable time and resources to ensure data quality through carefully designed training, monitoring, and recheck procedures, details of which are provided in each year's report and on the ASER Centre website.[35] A multi-layered system of field monitoring, desk recheck, and field recheck has been established wherein Master Trainers as well as ASER state and central teams travel to surveyed villages in order to check for adherence to survey process and protocols. Computer rechecks are also incorporated at the data entry and data consolidation stages. In addition, external process audits of the ASER data collection methodology are periodically conducted by independent bodies. 54.6% of all surveyed villages were monitored/rechecked in ASER 2018.

NAS is coordinated by NCERT at the national level, with the support of agencies such as SCERTs, State Institutes of Education (SIEs), and State Project Directorate (SPDs) in the states and union territories. Coordinators at state and district level are trained on administration of the survey. In each district, Field Investigators are briefed by the district coordinators on field survey processes such as selection of students in the sampled schools, administration of tools, use of OMR sheets by students etc. It is not clear whether field practice is included as a part of the training of Field Investigators. After data collection, the filled OMR sheets, questionnaires and field notes are collected, scanned, verified, and uploaded at the district level. A web application enables data collation, monitoring of state implementation, and timely generation of reports.[36]

Monitoring guidelines were laid out by NCERT for NAS 2017. The State Project Director - Sarva Shiksha Abhiyan (SPD-SSA) was tasked with coordination of monitoring activities at the state level. In each district, a District Monitoring Unit (DMU) was constituted to monitor day to day activities relating to the survey, such as training and implementation. Additionally, observers drawn from inter-ministerial departments were tasked with observing the implementation of the survey at the block level. However, there is no information in the public domain regarding the actual extent of monitoring during NAS 2017, or technical details regarding the reliability of NAS data.

Precision of estimates

ASER estimates are self-weighting at the district level. At the divisional, state, and national levels, estimates are weighted by the appropriate population weights. While ASER reports standard errors and margins of error at the divisional level, these are not reported at the state or national level. However, a study done on the precision of ASER enrollment and learning estimates shows that margins of error are well within 5% at the state level.

For every variable, sample sizes are checked and where the number of observations is found to be insufficient, estimates are not presented in the report.[37]

In earlier versions of **NAS**, weights were assigned as per the student response data, and standard errors were estimated using the jack-knife replication procedure.

Detailed district level report cards were generated by NAS for the first time in 2017. District reports included data on sample coverage, overall learning levels by grade and subject, and disaggregated learning outcomes by gender, location and social group, etc. However, since no standard errors are presented at the district level or at the state level, the precision of these estimates cannot be commented upon.

Note that while the average sample size per class in each district is stated to be approximately 1000, it is noted that several districts had much lower sample sizes, which may affect the precision of estimates at the district level.

[34] 236 DIETs from 14 states participated in ASER 2018.
[35] See http://www.asercentre.org/p/136.html
[36] NAS 2017: Operational Guidelines-cum Training Manual, retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/Operational_Guidelines_Training_Manual.pdf
[37] See Ramaswami, B. & Wadhwa, W. (2010). Available at: http://img.asercentre.org/docs/Aser%20survey/Technical%20Papers/precisionofaserestimates_ramaswami_wadhwa.pdf

Availability of tools and results

ASER findings are made available in the same school year in which the data is collected. The survey is conducted between September and November of each year and the report is published the following January. District, divisional, state, and national level estimates are made available in the public domain.

All ASER tools,[38] testing procedures and findings are available in the public domain.[39] All ASER data sets are available to researchers and research institutions upon request.

NAS 2017 was conducted on 13th November, 2017 and district report cards were published in the same school year for the first time. Since then the state reports have also been published. However, an aggregated national report for NAS is yet to be published as of December, 2018.

While NAS reports, communication documents, and sample items have been published by NCERT, assessment tools used in NAS 2017 are not available in the public domain as of December, 2018. NCERT published "Data Sharing and Accessibility Policy"[40] in June, 2016, to facilitate public access to NAS data through a web-based portal. This portal has not been set up as of December, 2018.

Test reliability and validity

ASER testing tools assess achievement of mastery rather than the performance of children relative to their peers. Reliability in this case refers to the consistency of the decision making process in assigning children to a mastery level, across repeated administrations of the test. In addition, since examiners assign each child to a mastery level, it is important to estimate the consistency of the decision making process across examiners. This is referred to as inter-rater reliability. A series of studies[41] indicates substantial reliability of decisions across repeated measurements (test-retest) and satisfactory inter-rater reliability.

Validity of a test means the extent to which the test actually measures the constructs it is intended to measure. The validity of the ASER Hindi language tool was examined using the Fluency Battery test.[42] The ASER language assessment is strongly associated with the Fluency Battery, with magnitude of the correlation coefficients ranging from 0.90 to 0.94.[43]

Earlier versions of **NAS** used the Item Response Theory (IRT) model for designing test forms and analysis of data, and reliability coefficients were published. While no information is publicly available regarding the reliability and validity of the NAS 2017 assessment tools, NCERT states that "internationally accepted technical standards and practices are being adhered to while planning, designing and implementing of NAS to ensure its robustness and sustainability".[44]

Comparisons over time

ASER has used the same sampling procedures since 2006. The reading assessment framework has not changed since the first survey in 2005, and the arithmetic assessment framework has not changed since 2007. In addition, the survey is conducted at the same time during the school year. Therefore, ASER estimates are comparable over time, enabling the study of trends in elementary education in India.[45]

NAS 2017 is not comparable with earlier versions due to changes in sampling, test design, and content of assessment. NAS 2017 is intended to provide a baseline for competency-based learning linked to learning outcomes recently developed by NCERT in different districts.[46]

[38] In ASER 2018, testing was conducted in 19 languages across India.
[39] See http://www.asercentre.org/p/141.html
[40] See http://www.ncert.nic.in/pdf_files/ESDDataSharingPolicy_24.6.2016.pdf
[41] See papers by Shaher Banu Vagh (2009 & 2013). Available at http://www.asercentre.org/sampling/precision/reliability/validity/p/180.html
[42] The Fluency Battery is a test of early reading ability adapted from the Early Grade Reading Assessment (USAID, 2009) and the Dynamic Indicators of Basic Early Literacy Skills (University of Oregon Center on Teaching and Learning, 2002).
[43] A correlation coefficient of 1 indexes a perfect and positive association between two measures.
[44] NAS 2017: Operational Guidelines-cum Training Manual, retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/Operational_Guidelines_Training_Manual.pdf
[45] See http://www.asercentre.org/Keywords/p/236.html
[46] Post NAS Interventions: Communication and Understanding of the District Report Cards, 2017 (p.3), retrieved from http://www.ncert.nic.in/programmes/NAS/pdf/DRC_report.pdf

Concluding thoughts

Robust national scale assessments generate great value by monitoring learning outcomes. Both, ASER and NAS with their advantages and limitations align with global efforts to monitor SDGs in education. Both, NAS and ASER survey exercises continue to evolve and improve over time. However, there are many aspects of the ASER effort that can be considered for adoption or adaptation for government or state mandated assessments.

1. On assessment frameworks: While it is essential to assess a broad range of domains and competencies in order to get a comprehensive picture of what children know and can do, there remains an equal, if not greater, need to establish whether children possess foundational skills such as literacy and numeracy. These skills are a prerequisite for mastery of specific content in EVS, science, and social studies. Given the wide disparity of learning levels in the same grade, it may be useful to incorporate foundational skills regardless of grade.[47] For example, ASER assesses mastery of specific foundational skills which include NCERT learning outcomes listed for Std I and II. These include tasks like "Identifies orthography and sound of alphabets" and "reads and understands written alphabets, words, and sentences."

2. On sampling design: ASER has been criticized for not following a school-based survey design. However, an important limitation of the NAS 2017 model, as indeed of any school-based assessment, is that it excludes several categories of children such as those enrolled in private schools, unrecognized schools, institutions of religious learning, out of-school children as well as those children who are absent on the day of assessment. On the other hand, a household-based survey is more inclusive in coverage by design, aiming to reach a representative sample of all children in a given age group. This is crucial to ensuring that no child is written off.[48] Additionally, ASER is simple, understandable and rapid, in adherence to the requirements of a good quality household survey.

3. On implementation, participation, and testing method: NAS is implemented with the help of state machinery - SCERTs, SPDs, DIETs etc. Although the government school system is an important component of education, the task of improving educational outcomes requires the collective participation of all actors involved in children's lives. ASER is a citizen-led participatory exercise, with the involvement of local partners and volunteers from diverse backgrounds. In addition to collection of field data, there is an organic element of engaging parents, ordinary citizens and a wide range of stakeholders in a debate around the quality of education in our schools. The eighth meeting of the Inter-agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDGs) was held from 5 to 8 November 2018 in Stockholm, Sweden.[49] UIS proposed a set of definitions of the skills and performance levels that all children should acquire. Performance descriptor at Std III is - *Students read aloud written words accurately and fluently and they understand the overall meaning of sentences and short texts.* ASER's method of one-on-one testing can generate reliable estimates against this descriptor.

4. On reporting and actionability: NAS 2017 results are communicated through State and District Report Cards with the help of generic parameters such as "average score" and theoretical concepts such as "learning outcomes". NAS has also developed a Data Visualisation Application, with technical support from UNICEF. NAS 2017 has made significant changes compared to earlier years in demystifying and dissemination of findings. Detailed guidelines have been laid down regarding dissemination of report cards to various educational functionaries, for qualitative improvement in learning levels in the government school system. ASER attempts to simplify the process of understanding learning assessments by displaying snapshots of the actual testing tool alongside proportion of children bucketed in various levels of proficiency. ASER continues to remain India's sole source of annual information regarding foundational abilities of children across all elementary grades. Notwithstanding criticism for its simplicity, ASER continues to serve as a resourceful source of educational information in India, as its findings are easy to understand and act on for policymakers, educationists, teachers, parents, and indeed children themselves.[50]

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[47] Lant Pritchett, 2018. https://www.cgdev.org/blog/india-massive-expansion-schooling-too-little-learning-now-what. Karthik Muralidharan, 2018 https://www.bloombergquint.com/global-economics/an-economic-strategy-for-india-by-rajan-gopinath-and-others-full-report#gs.tGwU9ZFV

[48] World Development Report 2018:Learning to Realize Education's Promise

[49] https://sdg.uis.unesco.org/2018/11/09/we-are-ready-to-start-monitoring-early-grade-learning/

[50] Oza & Bethell-Assessing Learning Outcomes: Policies, Progress and Challenges, Sarva Shiksha Abhiyan DFID funded research study, 2015. Another important aspect of these surveys lies in their effective reporting and advocacy- " … Whilst the Class V NAS report is technically superior and visually more attractive than its predecessors, there are still many lessons that can be learnt from the reporting formats used by, for example, Pratham/ASER and Educational Initiatives. Notwithstanding any technical limitations, these agencies consistently produce reports which are attractive and eminently readable. ASER in particular has been extremely successful in extracting from its studies "headline findings" which catch the attention of the media and, hence, generate a great deal of press coverage….". Also, ASER survey, over the years have made significant contribution to provide complementary data on learning outcomes (12th JRM) and annual snapshot of learning in rural areas.

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