

Background Note

Primary education has remained a serious concern of the nation since independence. Over the last few decades close attention has been paid to issues of access to schooling and learning among primary school children. A large number of programs and schemes have been initiated by the government to realize the goal of universal primary education. We, at Pratham have conducted rapid assessments in rural and urban India in 2004-05 to assess the schooling and learning status of children. During the past year, we have learned a great deal about how to conduct these rapid assessments. Our aim was not only to generate useable data but also initiate a process by which ordinary citizens could get involved in understanding the status of schooling and learning in their community. We thought this would be a good time to take a break and research other literacy assessment practices in India over the last few years and analyse assessment approach, tools and major trends in current literacy assessment practices. It was also important that we look at our own tools and redesign them, and take advice on sampling from experts.

We have put together a list of various literacy assessment surveys in India- the sampling process, tools used in assessment, and results of the surveys with focus on primary school children. We also met sampling experts at the National Council for Applied Economic Research (NCAER) to understand better how to sample children in rural areas. We also spent time reviewing and redesigning our Math tool used for testing through a pilot.

1. Review of Literacy Assessment Surveys in India:

- (1) Learning Achievement of Slum Children in Delhi, Y.P. Aggarwal and Chugh, Nov. 2003, NIEPA
- (2) Learning Achievement at end of Class V, April 2000, NCERT
- (3) Literacy Assessment Practices in selected developing countries, India Case Study, IV Subba Rao, March 2002, ILI/UNESCO
- (4) Literacy Exchange: World Resources on Literacy- Learning Partnership with neo-literates, 2001

We are in the process of putting together more such reviews relating to educational assessments in the last few years.

2. Note on Rural sampling after discussion with BL Joshi and Abusaleh Sharif at NCAER
3. Math Tool

**SECTION 1:
REVIEW OF LITERACY ASSESSMENT SURVEYS IN INDIA**

(1) Learning Achievement of Slum Children in Delhi

NIEPA, Occasional Paper 34

November 2003

Y.P. Aggarwal, Sunita Chugh

Objectives of the study: estimates average performance (mean score) of students on the competency based tests in language and math at end of Class 1 and Class 4; variation in mean percent achievement scores b/w govt. and unrecognized schools; analyze schooling infrastructure and examine family characteristics of children belonging to slum areas.

Sample of Study: purposive sample of six slum areas of Delhi identified on basis of location, religion, and socio-economic variations. 30 schools (16 govt. and 14 non-recognized) selected where children from slums were studying. Questionnaire administered to 92 teachers from sampled schools. Slum children from Std.1 and Std.4. Boy-Girl ration is 60:40 percent.

Total children tested	Children in Std.1			Children in Std.4		
	Total	Govt. School	Un-recognised school	Total	Govt. School	Un-recognised school
1330	654	415	239	676	372	284

Tools of the study:

- i. **Oral achievement tests for Std 1-** literacy (Hindi for Govt. schools, and English for Unrecognised schools) and numeracy.

Competencies tested in literacy:

 - Recognize pictures and read the corresponding word depicting the picture

Competencies tested in numeracy:

 - Counting objects – Ques.1-4
 - Addition and subtraction – 2 digits
 - Succeeding and preceding numbers - backward counting
 - Concept of ones and tens
- ii. **Paper and pencil achievement tests for Std.4 children**

Language (35 items)
Reading comprehension – multiple choice relating to given passages
Word knowledge tests – synonyms and antonyms

Math (40 items)
Understanding of whole numbers
Addition and subtraction
Multiplication and division
Simple problems relating to units of money, length, mass, time, capacity and area
Questions relating to use of fractions, decimals, percentages
Basic understanding of geometric shapes
Solving problems relating to speed and distance
- iii. **School schedule and Teacher schedule**
- iv. **Student profile**
- v. **Unstructured discussions with the household members, children and education officials**

Process used: Not mentioned. Thus not clear.

Findings of the study:

Primary findings

STANDARD 1

Govt. schools: Mean achievement score for Std.1 competencies was 59.6% for math and 55.6% for Hindi/English

Unrecognized schools: Mean achievement score for Std.1 competencies was 77.5% for math and 35.2% for Hindi

[From text: **“This is in contrast to the (Aggarwal,2000) findings. Major difference causing different outcome is the manner in which the Hindi/ Language tests administered.”** (Pg.40-41, Para 2)]

Math: One in every four Govt. school student is an under performer in Math. As per MLL (minimum levels of learning), all children should attain 80% competencies. In govt. schools, it is 19.3% children as compared to 60% in private schools who scored more than eighty percent

- 60% children in govt. schools can do simple addition and only 49.2% could do two-digit subtraction. In unrecognized schools, 85% children could do simple addition and 70% could do two-digit subtraction
- Most children had a good grasp of succeeding numbers, smaller and greater; concept of ‘one’ and ‘tens’ not covered fully. Even in private schools, a quarter of the children could not do this. Two digit addition and subtraction a problem for all children

Language: comprehension skills not achieved by one-third of the children govt. schools. Children of unrecognized schools too could not read words (like chatta, topi, gudiya) depicted by the picture. Language skills are overall poor for all children.

STANDARD IV

Govt. schools: Mean achievement score for Std.4 competencies was 25% for math. In language, 43% children attained less than average score of 30.

Unrecognized schools: Mean achievement score for Std.4 competencies was 40.1% for math. In language, 25% children attained less than average score of 30.

Math: As per MLL (minimum levels of learning), all children should attain 80% competencies. In govt. schools, 65% children did not get the minimum pass marks. Only 3 children in the unrecognized schools scored more than 80% marks.

- Only 22% children in govt. school could answer questions related to counting of days, subtraction problems, multiplication and unitary method. In private schools, 30% children answered correctly
- 10-15 percent students in govt. school understood and computed LCM and factorization as against 22 percent of the private school goers.

Language: grammar results make it clear that children of unrecognized schools find it easy to mug antonyms and synonyms, but comprehension of passages is weak. Language results make it clear that the children, migrants though from different linguistic backgrounds, the children find no problem with Hindi as a medium of instruction rather than English.

Secondary findings

General findings:

- Average family size of HH ~ =6 to 8 members; large family size makes it difficult to afford education of all children in the family
- Average HH income is Rs.2200p.m. When related to increasing prices of commodities with large family size, dependence on govt. schools to provide education to their children increases
- 69% families have only one member working. 27% HH spend ten percent of income on alcohol. 55% fathers of the children have irregular jobs and low income
- Slums are devoid of essential physical (living space, water and electricity) and sanitation facilities and are largely ‘unsettled and illegal’ in nature. Two-thirds of the sampled population lives in one room with no proper ventilation
- 50% of the families spend one-hour a day collecting water, the responsibility for this lying with one-fourth of the students
- Though 59% fathers are literate and can help their children at home, only 5% are helped by their fathers. The mothers of which 23% help their children with their homework, 65% were found to be illiterate
- Data collected on aspiration of parents w.r.t. their child shows that 25% want their children to finish secondary school and another 30%, senior secondary
- 45% children were taking tuitions outside the school

Findings related to Schools (infrastructure, material and teachers):

- School size not a constraint, but often not located in slum areas/ vicinity. Majority walk more than 30minutes to reach school
- Teacher-pupil ratio of 8 govt. schools ~ = 30-40, the remaining 8 schools ~ = 50-80. Unrecognized schools had low teacher-pupil ratio

- High enrolment in govt. schools as compared to private schools. Reason cited: few families could bear the expense
- Shortage of teachers reported
- 10-15% children didn't have all their textbooks
- 45% children reported getting regular supply of mid-day meals in govt. schools
- All teachers reported availability of blackboards. 62% govt. teachers reported the availability of a dictionary as compared to 80% unrecognized school teachers
- Use of teaching-learning material unsatisfactory in govt. schools: 15-30 percent teachers reported using charts, maps, flash cards, science and math kits.

A comparison of the scoring patterns of Grade 1 and 4 presents a distinct picture.

- The average achievement level was much lower in Grad 4 as compared to Grade 1. this was true of both language and math
- Achievement levels of slum children of govt. school was much lower as compared to children of other Delhi schools
- The score in math of unrecognized schools serving the similar kind of socio-economic disadvantaged groups was better than the govt. schools

Policy Options laid down:

1. Establishment of norms for opening and upgrading of schools, provision of teachers and other facilities for the schools located within the municipal limits
2. Special training and motivation of teachers for understanding problems of slum children (in the form of child abuse, danger of infection due to unhygienic conditions). Stress on environmental cleanliness
3. Developing a network of govt. and private schools to share common resources extending to increasing basic competencies of the children
4. NGOs and self-help groups operating in slums can be mobilized to organize remedial teaching at some central locations in the slums to help the slow learners
5. Teachers should be trained to manage the classroom without the use of rods. Create a friendly interactive atmosphere in the class rooms for peer group sharing and encourage children to explore
6. Children generally visit their hometown during the harvest season, at times overstaying into the academic session. Remedial teaching should be arranged and school days otherwise should be adjusted accordingly
7. Data reveals non-clarity on certain concepts dealt hurriedly through class. Members from the community should be involved in the monitoring of the coverage of curriculum
8. To improve competency in math, serious modification is needed in the curriculum and teaching methodology. Teachers should give children topic-wise assignments and discuss the same in the classroom
9. For improving competencies in language, audio and videocassettes should be used. Children should be given story books to read and take feedback from them
10. To improve competency of language in unrecognized schools, it is suggested they keep Hindi as a medium of instruction and English be kept as a separate subject. Curriculum and teaching methodology of English needs modification

(2) Learning Achievement of students at the end of Class V

April 2000

Prof. Avtar Singh, Prof. V.K. Jain, Dr. SKS Gautam, Dr. Santosh Kumar

Objectives of the study: To study level of achievement of children in Language, Math and Environmental Studies at the end of Class V, and examining the differences in achievement category wise, area wise and gender wise. To also study the influence of intervening variables like home, school and teacher on students achievement.

Tools: 3 main subjects developed standardized in 17 languages. Each test had 40 multiple-choice items.

Environmental Studies (EVS):

Concepts related to daily life activities, environment, health, hygiene, food functions, and powers of different organs of democracy.

Math:

Number system

Addition-subtraction-multiplication-division

Problem solving with HCF, LCM, decimals, fractions

Percentages and their simple application

Sale-purchase, Averages, Mensuration and problems on geometrical figures etc.

Language:

Contained 2 parts –

Part 1: 20 items testing usage and grammar

Grammatical structures, use of appropriate vocabulary, use of correct spelling, and recognition of errors.

Part 2: Reading ability of students, with 3 activities

Activity 1: based on comprehension of different signs and hoardings at places

Activity 2: interpret a school timetable

Activity 3: 2 unseen passages (value oriented); questions based on text given to students to evaluate ability to locate information, grasp ideas and theme of passage, identify relationships between ideas, events and characters etc.

Questionnaire tools: School Questionnaire, Teacher Questionnaire, and Pupil Questionnaire

Sampling:

Multistage stratified sampling design used for the selection of districts, rural blocks, urban areas, schools, teachers and pupils from each State and UT. It was planned to select 10% districts with a minimum of 4 districts from each state (except Goa which had only two districts and one was selected). Each UT was considered as one district.

116 districts selected. In each district, 4 rural blocks and 3 urban areas selected. From each district, maximum of 50 schools selected both from rural and urban areas on proportionate basis. In the sampled schools, a maximum of 30 students of Class V were selected. Three teachers teaching EVS, Math, Language were selected for filling teacher questionnaire.

27 states and 3 UTs participated in the survey during 2002. Data was collected from 88,271 students, 10,796 teachers, 4787 schools from 105 districts.

Analysis: 'Framework for Analysis of Data' was developed with details of data entry, data cleaning, data verification, preparation of different files, format of various table and use of statistical techniques for getting answers to basic questions raised in education.

Results:

Primary results: Student Achievement

[Distribution of scores ranging from 1 to 100 percent.]

	Overall average performance (in percent)	Standard Deviation	Least No. of cases observed in range 0-10 %	Maximum No. of cases observed in 30-40%	Percent children who scored more than 50% marks	Percent children who scored more than 60% marks
EVS	50.3	20.67	523 cases	16113 cases	48.5	34.25
Math	46.5	21.30	1176 cases	18123 cases	41.2	27.69
Language	58.5	18.30	250 cases	16489 cases	69.7	51.07

- Student's achievement was better in Language than EVS, which in turn was better than in Math.
- This was true for all states except Bihar, Chandigarh, Manipur and West Bengal.
- In Bihar, the achievement of students crossed 60% mark in all the three subjects where achievement of EVS was better than Language followed by Math.
- Manipur students topped the list by crossing 73% mark in all three subjects.
- West Bengal, Manipur, Tamil Nadu crossed 70% mark in achievement in Language.
- Four states crossed 60% mark in achievement and three states had average achievement below 40% in EVS
- Three states crossed 60% mark in achievement in Math, whereas in 8 states the average score was less than 40% in Math.
- The performance of half the states and UTs was below the All India average.

Gender wise and Area wise achievement:

EVS	Urban students, both boys and girls performed better than their counterparts in rural areas	Achievement of boys was better than girls in both rural and urban areas
Math	Urban students, both boys and girls performed better than their counterparts in rural areas	Achievement of boys was better than girls in both rural and urban areas
Language	Urban students, both boys and girls performed better than their counterparts in rural areas	Achievement of boys was better than girls in rural; However girls performed better than boys in urban areas
Grammar and Usage component	Urban students, both boys and girls performed better than their counterparts in rural areas	Achievement of boys was better than girls in rural; However no significant difference in urban areas
Reading Comprehension	Urban students, both boys and girls performed better than their counterparts in rural areas	Achievement of boys was better than girls in rural; However girls performed better than boys in urban areas

Gender wise and Category wise achievement:

EVS	'Other' category students, both boys and girls performed better than their counterparts in ST category followed by SC category	Within categories, achievement of boys was significantly better than girls
Math	'Other' category students, both boys and girls performed better than their counterparts in SC category followed by ST category	Within categories, achievement of boys was significantly better than girls
Language	'Other' category students, both boys and girls performed better than their counterparts in ST category followed by SC category	In SC category boys performed better than girls
Grammar and Usage component	'Other' category students, both boys and girls performed better than their counterparts in ST category followed by SC category	In SC and ST categories boys performed significantly better than girls
Reading Comprehension	'Other' category students, both boys and girls performed better than their counterparts in ST category followed by SC category	In SC category boys performed better than girls

Area wise and Category wise achievement:

EVS	'Other' category students, both rural and urban, performed better than their counterparts in ST category followed by SC category	Within each category, urban students performed much better than rural students
Math	'Other' category students, both rural and urban, performed better than their counterparts in SC and ST category	Within SC and Others categories, urban students performed significantly better than rural students
Language	In rural areas, 'Other' category students performed better than their counterparts in SC and ST category. In urban areas, ST performed better than Others followed by SC students.	Within each category, urban students performed significantly better than rural students

Grammar and Usage component	In rural areas, Others performed better than both SC & ST students. In urban areas, differences in achievement were significant between Others vs SC favouring Others and ST vs SC favouring ST.	Within each category, urban students performed significantly better than rural students
Reading Comprehension	In rural areas, achievement of Others was better than ST followed by SC students, and differences in achievement were significant across categories. In urban areas, ST performed better than Others followed by SC students.	Within each category, urban students performed significantly better than rural students

- The number of boys and girls in the sampled schools are nearly equal
- In rural areas, boys performed significantly better than girls in all three subjects whereas in urban areas, girls performed better than boys.
- In all three subjects, students of Others category performed significantly better than both SC and ST students.
- Within each category, boys performed significantly better than girls in EVS and Math. However in Language, only SC boys performed significantly better than girls.
- In all three subjects, in each category, except in Math in ST category, the urban students performed significantly better than rural students. In Math there was no significant difference in achievement between rural and urban students.
- Within Language the achievement in Grammar and Usage was higher than Reading Comprehension.
- In EVS and Language, ST students performed better than SC students, and in Math SC performed better than ST students.

Secondary Results:

School Profile

- Pre-primary classes were attached with about 27% schools in rural areas, whereas in urban areas 28.5% schools had pre-primary classes in them
- Teaching-learning material available in about 85% schools relating to maps, charts, books
- Magazines and journals were available only in 35% schools
- Infrastructure facilities (chairs, tables, blackboard, chalk, duster) in 91-95% schools; 72% schools had water pitchers, ladel and glasses; Toilet facilities in 55% schools
- First aid kit and electric connection in 40% schools; annual medical check up in 61% schools
- Average working days in schools was 213 days
- 65% schools had PTAs, and more than 67% schools had Village Education Committees.
- More students get the benefit of mid day meal schemes as compared to the rest of the schemes in the state

Teacher Profile

- Overall more female teachers than male teachers: in urban schools, females were twice more than male teachers. The trend was however reverse in rural areas.
- Average number of teachers per school in rural areas was 6 and urban areas was 9 teachers
- Average teacher pupil ratio was approx. 1:39
- Percentage teachers holding PG degree and secondary certificate was 58%
- Maximum in-service training programs conducted on 'Competency Based Teaching-learning and minimum on 'Use of Instructional Material' during the last three years.
- Majority of training programs conducted by DIET
- About 50% teachers had not attended any in-service training program in the last three years

Pupil Profile

- Educational profile of fathers was higher than the mothers
- Both boys and girls were getting more academic assistance from father/guardian than any other member of the family
- Approx. 90% students were attending school more than 70% of the working days and less than 4% students were attending school less than 60% of total working days

(3) UNESCO, ILI

March 2002

Literacy Assessment Practices in selected Developing Countries

India Case Study

I.V. Subba Rao

Objectives of the study: to review literacy assessment practices in India; present a historical overview of the growth in literacy and education levels over the last century; document major trends in current literacy assessment practices.

This study traces the policy framework, assessment approach, tools, quality of implementation of literacy assessments under the National Literacy Mission (NLM) and the District Primary Education Program (DPEP).

Findings with respect to History of Literacy Campaigns in India:

1. Literacy Campaigns in pre-independence period (1900-1947):

Focus on: 3 R's viz. Reading, Writing and Arithmetic.

Method: Night schools and literacy classes established in 1922 under the British rule and inspired by Gandhi. 1937 witnessed the first mass literacy activities in Bihar supported by installation of village libraries.

Results: Literacy rates went up from 9.5% in 1931 to 16.01% in 1941. 24 million people in India during this decade were made literate as compared to 2-9 million persons per decade in the earlier periods, i.e. 0.5% during 1900-1911 to 2.3 percent from 1921-31.

2. Post independence policies and programs (1947-2001):

Focus on: Gandhian concept of 'basic education' that went beyond the 3 R's to encompass life skills, values, and productivity oriented knowledge.

Programs: Basic literacy skills became a part of a larger social education program launched in the first five-year plan (1952-57); 1951 and 1961 – Gram Shiksha Mohim (Village Literacy Movement); 1967-68 – Farmer's Functional Literacy Program; 1978 – National Adult Education Program; 1988 - National Literacy Mission.

(1) National Adult Education Program (1978)

Focus on: functional education

Sample: was targeted to cover 100 million illiterate persons in the age group 15-35 years

Method: village reading centres (Jana Shiksha Nilayam)

Main components were Rural Functional Literacy Project (RFLP), State Adult Education Program (SAEP), Mass Program for Functional Literacy (MPFL).

Shortcomings:

- Inadequate preparation time for district plan, training of instructors and participation of all priority groups
- Duration of program too short and little provision for follow-up activities

References: Kothari Commission, Prof. Kothari, 1980

(2) National Literacy Mission (1988)

Objective: to achieve sustainable 75% literacy rate by 2005

Focus on: functional literacy to (80 million) non-literates in 15-35 years age group (concentrated on rural areas, women and SC/STs)

[By NLM definition 1: Functional literacy includes self reliance in 3 R's, awareness of causes of their deprivation, moving towards amelioration of their condition through organization and participation in development processes, acquiring skills to improve economic condition and general well-being, imbibe values of national integration, conservation of environment, gender equality and small family norm. By NLM definition 2: "...basic literacy and numeracy skills, functional knowledge usable in day-to-day affairs and social awareness." – Soundarapandian, p.2]

Approach: goal oriented (imparting basic literacy and social awareness), area specific (planned, implemented and monitored at district level of average 2 million population), and time-bound (12 to 18 months, 200 hours of instruction).

Programs: Total Literacy Campaigns, Post Literacy campaigns and Continuing Education Programs.

Methodology: mass mobilization through locally designed cultural events, conventions, and media. Pedagogical techniques to teach adults improved and standardized; new methodology called improved pace and content of learning (IPCL) adopted.

Process: groups of illiterate adults met at a place and were taught by educated youth volunteers in basic literacy skills with the help of 3 graded primers (prepared by academic team at district level with inbuilt exercises for practice, self-evaluation, testing and certification). Learning outcomes were sharply focused and defined for the first time.

Total Literacy Campaigns, Post Literacy Campaigns and Continuing Education Centres:

Total Literacy Campaigns: were developed by KSSP in Ernakulam district as a model to achieve mass literacy. Mobilisation of illiterates through posters, street theatre, music groups playing songs about literacy, and dance were important features of the campaigns. Typical features included training camps for volunteers, limited implementation size, flexible approach to time management and a built-in monitoring system.

Different NGOs and governing bodies conducted TLCs all over India usually implemented in a one-year period aiming at a specific age group. Average student-teacher ratio was 10:1.

Material used followed NLM patterns. Literacy, numerical skills and workbooks were integrated, and a test paper and evaluation materials was included. Collaboration in developing materials with Jamia Millia Islamia University.

Evaluation Test: (based upon recommendations by Dave Committee¹)

Motivation of enrolment: 67.9% participated for learning how to sign their name, how to read distinction boards on buses, and how to read cinema posters.

Post Literacy Campaigns: The initial literacy campaign was followed up with a Post Literacy Campaign intended to prevent relapse into illiteracy, enroll dropouts, and enable non-achievers to upgrade literacy skills. It was also intended to enable learners to use literacy skills in day-to-day life. Final evaluation was done by an external evaluation agency nominated by the NLM authority.

Evaluation: of neo-literates by way of mailed written responses on pre-paid postcards and by first hand interviews. Newspaper sheets circulated. (Reference: State Resource Centre Jamia Millia Islamia supported by UNESCO)

Response of postcards: 2,163 postcards returned out of 42,806 distributed. Most respondents willing to pay modest fees to continuously receive the newssheet.

Continuing Education Centres: set up to provide learning opportunities beyond basic literacy and primary education. Offering to improve skills for recreation, cultural pursuits and vocational training with a library, reading room, learning center, training center, information center etc.

Results:

574 districts covered of total 598 districts in the country.

2000: 258 districts entered post-literacy phase. 88 districts were already in the continuing education phase.

2002: 302 districts have entered the 'continuing education' phase. 125 million learners have been enrolled so far. 91.5 million adults have become literate under all schemes of NLM. 61% of the learners are women and 36% belong to the disadvantaged social groups.

Reference: National EFA 2000/ Assessment Report

¹ Dave Committee: constitute in 1992 by the GOI under the chairmanship of Prof. R.H. Dave, an eminent educationist and former director UNESCO, Institute of Education, Hamburg. This committee laid down the principles for literacy assessment, possibly for the first time on a systematic basis, which are now followed uniformly throughout the country in all external evaluation of the campaigns.

(3) District Primary Education Program (DPEP)

Literacy campaigns generally focused on adult learners above 15 years. Census however calculates literacy rate for the entire population above 7 years. Since many children in the age-group 7-14 years are supposed to be in school, the quality of learning in schools has a direct bearing on overall literacy rate in the country. A massive national program for school improvement was launched called the District Primary Education Program, with assessment surveys conducted at periodic intervals.

Findings of the Study with respect to Literacy Assessment practices in India:

1. Population census

Objective: collecting data, among other demographic features, on literacy every 10 years

Sample: Till 1941, estimates based on entire population. From 1951-71, population above 5 years was taken. From 1981 census, literacy rates calculated for population above 7 years.

Tools: Question asked - "Are you literate? Can you read and write?"

Drawback:

- No objective test of the 2 'R's i.e. reading and writing. No mention of math at all. It is based on a self-declaration of the respondent.
- Possible underestimation or overestimation of literacy depending upon how the question asked – "Are you literate" is interpreted. In some cultures or languages, it could be understood as "Have you gone to school?" or "Can you sign?"
- Dichotomous classification into 'literate' and 'illiterate'

2. National Sample Survey Organisation (NSSO)

Objective: collecting data on literacy and education as part of its sample surveys once in 5 years.

Sample:

Sample sizes and design in N.S.S.O Surveys	
Survey Year	Sample size
July - December 1991	305,078
July 1995 - June 1996	371,820
July 1999 - June 2000	600,016

Two stage stratified design with villages or urban blocks as first stage and households as second stage has been followed in all these surveys.

Source: N.S.S.O. 1995, 1998, 2001

Table: Comparison of 2001 census figures with 55th round of NSSO (July 1999 - June 2001)

	Male		Female		Person	
	55 th Round	Census 2001	55 th Round	Census 2001	55 th Round	Census 2001
All India	73	76	51	54	62	65

Source: NSS Report No. 473: Literacy and levels of Education in India 1999-2000

State wise figures on page LAP India-12 of report. All India figures show the census estimating an absolute 3% higher literacy rate for population above 7 years for male and female.

Method: adopts census definition of literacy but takes a sample as basis for estimation. Collects information on different demographic features correlating to economic activity of the person, economic status, social group to which one belongs, and the amount of land owned by the household or person.

Tool: **1991 survey (47th round)** added a **literacy test** to the survey with reading, writing and numeracy components and was administered to a sub-sample of persons who had declared themselves to be 'literate'.

[To download: test design, instructions to the field staff, the 30 languages the test was conducted in, and component wise results- Annexure II]

The **Literacy test**: supposed to be remarkably simple- a booklet consisting of certain passages followed by questions. Test in 30 languages. First of its kind, and to be further developed.

Reading: The investigator would select a passage suitable from the point of view of the individual's age, sex, general status and background. No time limit fixed and the individual had enough time to read the passage. One or two questions were asked to judge individual's comprehension.

Writing: To test 'writing ability', the person was asked to write down a simple message or 1-2 sentences dictated by the surveyor from the passage.

Math: The following numeracy skills were also tested- counting of numbers, reading and writing of numbers, knowledge of simple arithmetic operations.

Sample: 5433 persons in age group of 15 yrs and above and reported as 'literate' by the informants, but had received less than 5 years of schooling. (Those with more than 5 yrs of schooling assumed as literate).

Observations:

- Approx. 66% who took the test qualified as 'literate' implying that 34% of those who claimed 'literate' status had failed to qualify. This points to a distinct possibility that actual literacy levels might be lower if an objective assessment of literacy were made instead of relying on the respondent's self-assessment as in census surveys.
- Nearly 3% in rural areas and 6.5% in urban areas couldn't read. 12.6% in rural areas and more than 20% in urban areas couldn't write. Gender gaps in achievement in reading and writing are more evident in the urban areas than rural areas.
- Interestingly, 87% could write in rural areas, while only 78% could read.
- While 41% of the men in rural areas could do all arithmetic operations, the percentage was more than 71% in urban areas. 19% rural women could do the math operations as compared to 52% women in urban areas.
- Relapse into illiteracy- estimated 3% relapsed into illiteracy. However, only 0.9% who had 4 years of formal schooling lapsed into illiteracy pointing to the close relationship between literacy and schooling.
- Nearly 60% urban literate persons read newspapers as against 31% in rural areas. Only 1/4th of the literate persons read books in urban areas. This shows inadequate literacy environment to enable literate persons to sustain and improve their literacy levels. Demonstrates need for creation of effective library systems and spread of literacy materials.

Reference: 'Literacy and levels of Education in India 1999-2000', September 2001.

3. National Literacy Mission (NLM) – 1998

Objective: to create a practical, easily intelligible and implement-able design which could be used universally across the country.

Tool: Life skills and functional aspect included

Reading: Reading with understanding road signs, posters, simple instructions and newspapers

Writing: Writing independently short applications and forms of day-to-day use to learners

[To download: blue print of test and framework- Annexure III]

Method: aligned the evaluation process and testing design to the prevailing norms of literacy skills under NLM. Grading system favoured. Dave committee ¹assigned greater weight to reading rather than writing and numeracy on the assumption that reading is a more frequently used skill.

It was declared that a 'literate' person should have a minimum score of 70% in the aggregate in the three tests of reading, writing, and math with at least 50% in each of the competency areas.

The tests were designed by an academic group in each of the districts and administered by teachers or educated youth volunteers, from the same or neighbouring villages.

Test scores are communicated in terms of 'range of scores' like 'Good/Fair/Poor/Quite Ignorant' or 'Level 1,2,3 and non-literates' or 'Grades A, B, C' etc. or mean score.

¹ Dave Committee: constitute in 1992 by the GOI under the chairmanship of Prof. R.H. Dave, an eminent educationist and former director UNESCO, Institute of Education, Hamburg. This committee laid down the principles for literacy assessment, possibly for the first time on a systematic basis which are now followed uniformly throughout the country in all external evaluation of the campaigns.

Sample: The Arun Ghosh committee (Annexure IV) went into issues related to sampling while endorsing the broad principles of the Dave Committee. It recommended that the sample size be 5-10% of the whole to make it more representative. It suggested stratified random sampling design which is now being adopted formally in all external evaluations.

Impact assessment: of literacy on other social indicators and document the growing awareness of learners about social issues.

References: Srikakulam survey (Gopalakrishna Reddy, M. 1994); Centre of Media Studies, 1997- sample study of 1669 neo-literates in 3 states;

Advantages of assessment practices under the literacy mission:

1. Low cost = Rs.1.75 to Rs.3 per learner
2. Criterion referenced and norm referenced testing as set by the Mission
3. Simple and practical
4. Common framework but flexible enough to be contextual as per assessment design by Dave Committee. Local language used.
5. Collects demographic background details for impact assessment- mother tongue, gender, caste, occupation, level of schooling, religion, educational level of parents
6. Stratified random sampling procedures give adequate representation to disadvantaged groups

Post Literacy and Continuing Education programs:

Objective: test skills of neo-literates as applied to daily activities (functional literacy component)

Tool:

Language

- Writing short sentences and paragraphs on local problems
- Filling out forms needed for daily use
- Reading passages with comprehension

Math

- Using numeracy skills to prepare household accounts
- Reading a calendar or clock
- Calculating interest

[To download model test paper from Annexure V]

General References: Dave Committee: Prof. R.H. Dave, 1992 (Former director UNESCO, Institute of Education, Hamburg); R.S. Mathur, 1992; Arun Ghosh Committee, 1994 - Annexure IV.

4. District Primary Education Program (DPEP) and Sarva Shiksha Abhiyan (SSA)

National Education Policy, 1986 provides current framework for literacy assessments in basic education and adult literacy. Minimum Levels of Learning (MLL) specified in 1990 by Prof. Dave.

Objective: revitalize primary education system to achieve universalisation of primary education in India

Methodology: Baseline Assessment Survey (BAS) followed up by a Midterm Assessment Survey (MAS)

Baseline Assessment Survey, 1994

Objective: learning achievement of primary school students in reading and math at end of primary school cycle

Sample: 46 districts, 8 states, 50,000 children in 1817 schools on basis of a multi-stage sampling procedure.

Tools: Standardized tests used.

For Class IV and V - common curriculum of Class III and IV

For Class II – simple literacy and numeracy tests of NCERT

For Dropouts – simple literacy and numeracy tests employed in the World Bank Research Projects in other countries

In addition, the following schedules were also used:

- Student Present Schedule
- Dropout Student Schedule
- Teacher Schedule
- School Record Schedule

Class	Subject	Content areas	No.of items
V	Math	Fundamental operations, unitary method, multiples fraction decimal, time; weights and measures and geometry	40
	Reading	Word meaning, Comprehension	40, 44
IV	Math	Number reading/recognition, place value, addition and subtraction, multiplication, division, weights and measures, time and period, fraction, geometry and shapes	40
	Reading	Word meaning, Comprehension	20, 24
II	Numeracy	Number recognition, Addition and subtraction	6,8
	Literacy	Letter Reading, Word Reading	10
Drop outs	Numeracy	For fundamental operations	8
	Literacy	Factual questions based on 5 statements	5

Source: NCERT (1994) Research Based inventions in Primary Education

Mid Term Assessment Survey, 1997

Objective: mid term assessment of language and math competencies of primary school children

Sample: Class 1 students, Class 3 and Class 4 students: 80,906 students in 2781 schools in 56 districts in 8 states

Tools:

Class 1:

Language: Recognition of words associated with pictures

Math: 10 competencies measured in numeracy

Class 3:

Language: 'word knowledge' and reading comprehension

Math: 30 competencies relating to four-digit numbers

Class 4:

Language: word knowledge and reading comprehension

Math: 35 competencies

Data analysis: by NCERT; Not much has been said about results or comparative assessment.

(4) LITERACY EXCHANGE: WORLD RESOURCES ON LITERACY

INDIA- UNESCO/ Indian National Co-Operation with UNESCO: Learning Partnership with Neo-Literates. New Delhi, 2001.

This is a sample of a tool used during the literacy campaigns for assessing reading and writing skills as applied to everyday life of neo-literates.

Table 3.22
Use of Reading Skills Reported by Neo-Literates
(Individual interviews' data)

Reading Skills used for:	Response frequency	Percentage
Reading banners/ posters/ publicity boards etc.	92	6
Reading TV captions or film/ song titles	7	0.5
Reading newspapers	453	32
Reading story books/ magazines/ novels etc.	453	32
Reading information printed on product labels	55	4
Reading letters	274	19
Locating addresses	28	2
At own shop	7	0.5
For further studies	7	0.5
Reading anything	16	1
Reading by making-breaking	7	0.5
Not dependent on others any more for reading	14	2
Total responses (no. of respondents = 798)	1411	100
Never used (no. of respondents)	59	7
Average response per respondent = 1.77		

Table 3.23
Use of Writing Skills Reported by Neo-Literates
(Individual interviews' data)

Writing Skills used for:	Response frequency	Percentage
Writing letters/ applications	610	67
Giving written instructions for shopping to children	12	1
Affixing signatures	18	2
Writing stories and poems	36	4
Filling in bank and post office forms	64	7
Taking notes of tailoring classes	27	3
Helping children with written homework	63	7
Preparing a shopping list	64	7
Copying written matter	8	1
Business and vocational purposes	9	1
Total responses (no. of respondents = 798)	910	100
Never used (no. of respondents)	59	7
Average response per respondent = 1.14		

Some Sample of communication with the neo literates by newsletters and postcards:
Please check zipped files (Part 2) for this section. The file is too large otherwise.

**SECTION 2:
NOTE ON RURAL SAMPLING (in consultation with NCAER)**

March 16, 2005

Question we are addressing is: **How do we select children from a village (in a dipstick fashion) to arrive at a representative sample which will tell us the education status of the village vis-à-vis how many children can read, write and do simple math?**

As per our discussion with Mr. Shariff and Mr. Joshi, here is a step-by-step of what we have gathered about sampling villages and children as part of our 'dipstick':

Selecting the sample:

The Village: stratified selection

[Stratified on basis of 'small', 'medium' and 'large' villages; assign certain criteria i.e. first by size, then by characteristic or vice-versa]

Issue: how many small/medium/large villages to choose?

The Children: simple random sampling from a child wise listing of the sub-section selected

Selection of the children once the village has been selected:

Day 1

Step 1: Mapping the village [Duration ~ = 1-2 hours]

- Go to the village. Start from one direction and move into the village.
- Draw the main road, and the smaller lanes.
- After every 300 mts or so, stop (under a tree for shelter etc.). Gather a few villagers and ask them to make a rough map of their village.
- Move forward and verify the map drawn by them. Do this a few times (4-5 times). By the end, you will have a fair idea of the village, the hamlets, and their caste composition.
- Depending on the various inputs about the number of households in each hamlet, arrive at an average consensus to work on.

Step 2: Selecting a sub-section

- Depending on no.of HH, divide into geographical areas- each with not more than 100 HH.
[Note- if a 'small' village has about 100-150 HH, do a complete listing of all the children of the village. Do not sub-select.]
- Randomly pick 'n' number of sections depending on total number of sections the village has been divided into (This can be done by picking chits etc. Don't choose on basis of caste, size etc.).

Step 3: Listing Children (Duration ~ = 3- 4 hours)

- From the sub-section that is selected, do complete child listings from every house.
[The listing should include all social characteristics/variables of the sub-section].
- **Focus Group Meetings:** A part of the agenda for Day 1. The gathering should be homogenous so as to get a response from all parties concerned, i.e. women, lower caste groups etc.

Step4: Selecting Children (in the evening after returning from the village and regrouping)

- Once you have a complete list of all children in the selection, pick the number of children you want by simple random sampling. [Circular sampling in segment etc.]
E.g. If you need to select 50 children from every sub-selection, choose a generated number and pick every 'n'th child corresponding to that number.

Day 2

Step5: Testing Children

- Go back to the village, and test children whose names are selected from the sub-sections.

SECTION 3: DESIGNING A MATH TOOL

Objective: To create a math tool to gauge the arithmetic level of the child and which is easily understood and can be administered universally by anyone.

The math tool was constructed twice with certain hypothesis in mind that had to be tested with children in the age group 7-14 years. Both the pilots included 'understanding' of the word problems as well as solving it in the correct written format, which was recorded in the evaluation format.

Construction of the First Math Tool –

In the first pilot, the focus was on first 'understanding' and then solving the problem. The questions were related to basic numeracy – addition and subtraction, with a word problem on division as well.

The following levels were included in descending order of level of difficulty:

- Division (2 digits by one digit): word problems
- Subtraction (2 digits with borrow): word problems
- Addition (2 digits without carryover): word problems
- Number dictation (1-100): numbers
- Number recognition (1-100): numbers

The following hypothesis were to be tested:

- Hypothesis 1: Can every child who solves the problem in addition, subtraction and division also understand the problem?
- Hypothesis 2: Can every child who does number dictation do number recognition?
- Hypothesis 3: Can every child who can do subtraction do addition?

Sample:

A total of 78 children in the age group of 7-14 years were randomly tested from a Pratham demarcated zone. 72 children were enrolled in school.

Age Group	Total children	Boys	Girls
7-10 years	59	33	26
11-14 years	19	12	7
Total children	78	45	33

Hypothesis 1:

Can every child who solves the problem in addition, subtraction and division also understand the problem?

Testing the hypothesis:

	Total children: 7-14 years		
	Divide solve	Subtract solve	Add solve
Total children who can solve:	4	25	40
Divide understand	4		
Solve understand		25	
Add understand			37
Total children who can solve the problem but not understand:	0	0	3

Thus, we see that of all the children who can solve, only 3 children who can solve addition word problems do so without understanding. This may be specific to their background or some special reason. This leads us to the conclusion that 'all the children who can solve problems can also understand the same.' So we can do away with the 'understanding' concept in the evaluation grid.

Hypothesis 2:

Can every child who can recognize numbers also do number dictation?

Testing the hypothesis:

	7-10 years	11-14 years	Total: 7-14 years
Total children who can recognize numbers	45	24	69
Total children who can do number dictation	41	22	63
Total children who can recognise numbers but cannot do dictation of numbers	4	2	6

69 children could recognize numbers from the total sample. Thus, we see that of the total children who can recognize numbers, 6 children cannot do the dictation of it. Interestingly, three children of these are the same ones who can solve addition word problems without understanding it (Hypothesis 1).

Hypothesis 3:

Can every child who can do subtraction do addition?

Testing the hypothesis:

	Can Solve subtraction
Cannot do addition	1
Can do addition	24
Total children	25

25 children could solve subtraction problems from the total sample. We see that there is only one child who can solve subtraction but cannot do addition. So we conclude that any child who can do subtraction with borrow can do simple addition without carryover.

The Second Math Tool –

Based on our experience with the first math tool, we constructed another math tool to be piloted. The focus remained on 'understanding' and then solving. The level of difficulty was higher with 3 digit addition and subtraction and multiplication being included as levels below division.

The current structure is thus:

Division (2 digits by one digit): word problems
 Multiplication (2 digits by one digit): word problems
 Subtraction (3 digits with borrow): word problems
 Addition (3 digits without carryover): word problems
 Subtraction (2 digits with borrow): word problems
 Addition (2 digits without carryover): word problems
 Number recognition (1-100): numbers

The following hypothesis were to be tested:

Hypothesis 1: Can every child who solves division problems also solve multiplication?

Hypothesis 2: Can every child who solves division also solve 3-digit subtraction?

Hypothesis 3: Can every child who does 3-digit subtraction with borrow also do 3-digit simple addition?

Sample:

A total of 65 children were tested in the second pilot. 62 children were going to school.

We had to consciously look for 11-14 year olds to be able to test our hypothesis related to higher skills i.e. of division and multiplication and 3-digit addition and subtraction.

Sample Table:

Age group	No. of children
7-10 years	17
11-14 years	48
Total children	65

Hypothesis 1:

Can every child who solves division problems also solve multiplication?

Testing the hypothesis:

	No. of children who could solve division	%
Cannot solve multiplication	3	23.1
Can solve multiplication	10	76.9
Total	13	

13 children could solve division word problem. We see that 10 of them could also solve multiplication problems i.e. 77% children.

Hypothesis 2:

Can every child who solves division also solve 3-digit subtraction?

	No. of children who can do division	%
Cannot solve 3-digit subtraction	1	7.69
Can solve 3-digit subtraction	12	92.31
Total	13	100

Of the total sample 13 children can do division. Only 1 child who does division cannot solve 3-digit subtraction.

Hypothesis 3:

Can every child who does 3-digit subtraction with borrow also do 3-digit simple addition?

Testing the hypothesis:

	Solve 3-digit subtraction	
Solve 3-digit addition	28	100

We see that all children who can solve 3-digit subtraction can also solve 3-digit addition.