

# STATE LEVEL ACHIEVEMENT SURVEY (2014-15) SUMMARY

## STATE COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

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### **SUMMARY**

#### **Introduction**

In order to achieve the vision of the XII Plan, MHRD has approved State Level Achievement Survey (SLAS) in its AWP & B for the year 2014-15 for assessing Learning Achievements of children in the States/ UTs. As a matter of Policy SCERT, Delhi has made it a part of its agenda to carry out this Achievement Survey for Classes II, V and VIII for monitoring the quality of School Education at the Elementary Stage in Government run Schools of Delhi.

For the year (2014-15) SCERT, Delhi has undertaken 1<sup>st</sup> State Level Achievement Survey (SLAS) to find out (i) the learning achievement of students of Class II in Hindi, Mathematics, Class V in Hindi, Mathematics & EVS and Class VIII in Mathematics, Social Science, Science and Hindi subjects; (ii) To compare achievement level of students of different districts in Mathematics, Social Science, Science and Hindi subject; (iii) to compare the achievement level of students on the basis of Gender and (iv) to compare the achievement level of students on the basis of Location *i.e.* Rural and Urban.

The study also intends to collect relevant information about the background factors about School Environment, Home Background of Students, and Teacher Qualification *etc.* SLAS data will give various Stakeholders and Policy Makers an impetus insight for improving the learning achievement in School Education. The findings will enable the Government to objectively evaluate its Educational Policies.

#### **Methodology**

#### **Sample Selection**

The Survey has covered six districts which were randomly selected out of 13 districts of Delhi. These six districts were North East, North, North West, West A, South West B and South. Further, 25 Government schools of NCT, Delhi under Directorate of Education, MCD, NDMC and DCB were selected from each district (total 150 Schools). So far administration of Achievement Tests were concerned total 27000 tests were administered in all the three classes in their respective selected subjects which comprised of 5886 tests in Class II, 7208 tests in Class V & 13906 tests in Class VIII.

**Selection of Students** The students were selected from the sample schools on random basis. The number of students according to their class is given below: **Class II & V: 25 schools in each district, 60 students each subject For Class VIII: 25 schools in each district, 60 students in each subject.**

The survey was administered in the year 2014-15. Tests and questionnaires were administered on an adequate sample required to run Item Response Theory. The survey finally covers 27,000 students.

**Tools for the Study** Sub-committees were formed for development of Tools for data collection. Tools developed and finalized after pilot testing in schools drawn from sample. The completed published Reports of NAS and related tools were studied in depth before finalizing the tools. Then necessary adaptations were taken up in the tools developed by SCERT.

To measure the learning levels of students studying in classes II, V & VIII in valid and reliable manner the Achievement Tests were developed in Language (Hindi) and Mathematics in Class-II, Language (Hindi) and Mathematics and EVS in Class-V and Language (Hindi) and Mathematics, Science and Social Science in class –VIII. For this purpose the syllabi and the textbooks of classes II, V & VIII in the subjects selected were analysed and core content and competencies were identified, which formed the framework for developing Achievement Tests in different subjects in classes II, V & VIII. The Item Grid specifying the Difficulty Level and Theme/Concept. Competency of each Item of the Achievement Test was constructed.

Three times of the Items selected in Achievement Tests were prepared in all the subjects selected in classes II, V & VIII—Language (Hindi) and Mathematics in Class-II, Language (Hindi), Mathematics and EVS in Class-V, Language (Hindi) and Mathematics, Science and Social Science in class –VIII. 25% of these were Easy, 50 % Average and 25% were difficult. A pilot study was undertaken on one school of each category to see the difficulty level of the items according to the level of the students of Primary and Upper Primary level. Two Third of the Items were shortlisted after Pilot-Testing. Difficulty Value of the Test Items was calculated and after vetting by subject experts, the Items were finalized and again they were tested for Reliability and Validity.

**Tool Administration & Collection of Data** To conduct the present study following Achievement Tests and Questionnaires were prepared.

**Achievement Tests administered are as under:**

1. Language (Hindi), Mathematics for Class II
2. Language (Hindi), Mathematics and EVS for Class V
3. Language (Hindi), Mathematics, Science and Social science for Class VIII

Besides these three questionnaires, other Questionnaires were developed to collect information on background Factors on Schools, Teachers, and Pupils' School experiences and home backgrounds are as under-1. Pupil Questionnaire (PQ)



2. School Questionnaire (SQ)
3. Teacher Questionnaire (TQ)

District Coordinators from different DIETs of Delhi with Academic Faculty and D. El. Ed Trainees were oriented for the purpose of Administration of Tools for Data Collection in select Sample Schools of NCT, Delhi.

The tools i.e., Achievement Tests and Questionnaire for collecting information about school, parents and students experiences were administered upon the sample students of selected school in their respective classes and on the school administrators and parents of the sampled children. After the administration of the tools, the data gathered were tabulated for analysis.

### Analysis of Data

In SLAS, the learning achievement data was analysed using Classical Test Theory (CTT) and Item Response Theory (IRT). IRT assume that there is a statistical relationship between the difficulty of an item, the ability of the student, and the probability of being successful on the item. Students with higher ability scale scores are more likely to succeed on any item than their peers of lower ability, while all students are less likely to succeed on items with higher difficulty scores. In fact, a student's probability of success on a particular item is dependent on the difference between the ability of the student and the difficulty of the item.

Throughout this report, results are reported using 'Scale Scores' calculated using IRT along with percentage correct scores.

To help readers make valid comparisons, many tables include the results of tests of significance. These are statistical checks which, by taking into account the two values being compared and their standard errors indicate whether an observed difference is likely to be a true difference or whether it may have happened by chance. In this report, such tests have a confidence level of 95%. This means that if a difference is marked as being 'statistically significant', then the probability of it happening by chance is less than 5%.

The average score reported for each participating district is accurate for the chosen sample however, the true average for the population may vary from the sample average. This likely variation is expressed in terms of what is known as 'Standard Error' and as a thumb rule the average score of the population is estimated to fall within a range of plus or minus two standard errors from the sample average. In addition to the average scores, Percentile scores are also reported in the SLAS. Percentile tables illustrate the achievement within districts at different percentiles. A percentile score indicates the scale score below which a certain proportion of students fall. By providing such data, SLAS allows Districts to compare achievement not only for 'average students', but also across the full ability range.

Item Statistics has also been used in Data analysis. (**b parameter**): The difficulty of an item is known as the **b** parameter in IRT (**a parameter**): The **a** parameter expresses how well an item can differentiate among students with different ability levels tried

**Scale Scores:** Scaled scores are computed by statistically adjusting and converting raw scores onto a common scale to account for differences in difficulty across different test forms.

### Findings

**Given below are the Major Findings of the Study: OUR SCHOOLS, STUDENTS AND TEACHERS: The SLAS survey used three questionnaires designed for Schools, Teachers and Pupils; to collect information on background factors that could potentially influence learning outcomes. The Study covers detailed information on the students and school related variables which have been categorized as -Students' background, Resources available at Home, Resources available in School and Students' Activities outside the School. The Study also covered variables like Gender, Social Groups, Language used at Home & in School, Number of Siblings, and whether they are Physically Challenged etc. This survey also focused on some of the variables such as Parents' Level of Education, their Occupation and Resources available at Home that facilitate Learning of the Students.**

**The Characteristics reported in the Study are based on the Sampled Schools Students and Teachers: SCHOOLS**

- State Level Achievement Survey was conducted in Delhi for the Year 2014-15 to study the achievement level of students of Class II, Class V and Class VIII.
- Overall data was collected from 145 schools out of proposed sample of 150 schools of Delhi, which were selected from six Districts in Class II & V
- Data was collected only from 136 schools from 6 selected Districts of Delhi. in Class VIII
- Out of the total schools taken for this study 55% schools were managed by the State Government and 45% were Govt. Aided schools at Primary Level
- Out of the schools selected 20% were Rural Schools and 80% were Urban Schools in Class II
- Out of schools taken for the study 86 % schools were from Urban areas and 14 % of schools were from Rural areas in class V
- 87 % schools (118) were from Urban areas and 13 % of schools (18) were from Rural areas in class VIII.
- Of the total schools 77% schools were of Pucca building, 21.6% having Partial pucca building and less than 1% schools are running in Kaccha Building. More than 89 % schools have all the basic facilities of Electric connection, play ground, Library. Safe and adequate drinking water is available in 97.7% schools and more than 93% schools have separate toilet facilities and specially for girls and barrier free access in school building. More than 93% schools have Sports & games material for the students, 95.2% schools have staff rooms and more than 87% schools have separate classroom for each section. It is also revealed from the figure that 92.7% schools have First

Aid kits but only 82% schools conduct annual checkup for their students in Class VIII.

- Data was collected from Boys (32%), Girls (32%) and Co-Ed (36%) schools in Class II
- Out of the total schools surveyed, 42% were Girls' Schools and 33% were Boys' Schools and the remaining 25% were of Co. Ed schools in class V
- Out of the total schools surveyed, 42% were Girls' Schools and 36% were Boys' Schools and the remaining 22% were of Co. Ed schools in class VIII.
- In total sample schools surveyed - Pre-Primary sections were attached in 38% of schools and the remaining 62% of schools were without Pre-Primary sections in class II & V
- Of total sample schools surveyed in 38% of schools Pre-Primary sections are attached and in the remaining 62% of schools were not attached to Pre-Primary sections in class VIII.
- Students of class II studied in three types of school: 29% of students studied in Boys' school, 35% of students studied in Girls' school whereas 36% of students studied in Co-ed schools.
- At Primary Level 87% of the schools surveyed provide education up to class V while the remaining 13% provide education from classes I to XII
- Shows that 96% of total sample school responded that they worked for 6 days in a week where as 4% of the schools worked for 5 days a week at Primary level.
- 69% of total sample schools worked for 201-220 days in the year 2011-12. In the same year 23% schools worked for 221-240 days, 3% schools worked more than 241 days, 3% schools worked for 161-180 days and only 1% schools responded that they worked up to 160 days in class VIII.
- Of the total schools 77% schools followed 8 periods in a day to teach the students. 14% schools follows 6 periods in a day whereas 5% schools followed 7 periods, 2% schools followed 9 or more periods in a day.
- Of the total schools 81% schools followed 8 periods in a day to teach the students. 13% schools followed 6 periods in a day whereas 4% schools followed 9 or more periods and 2% schools followed 7 periods in a day.
- Shows that in 39% schools each period was of 35 minutes, in 42 % schools one period was of 40 minutes, in 13% schools each period was of 45 minutes or more than this where as in 6% schools each period was of 30 minutes in class VIII survey.
- In more than 98% schools (98.6%) maps are available, in 97% schools Globes were there, charts were available with more than 98% schools (98.5%), mathematics kits were with more

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than 89% schools (89.6%) and science kits were with 89% schools and more than 56% (56.5) schools had Musical Instruments. Only few schools did not have Maps (1.4%), Globe (3%), Charts (1.5%), Mathematics Kit (10.4%) and Science Kit (11%) and Musical Instruments (43.5%).

- PTA (90%) and SMC (88.8%) exist in most of the Schools.
- 73% Schools under the Study were managed by State Govt., Zila Parishad, Panchayat, Local Body, Municipal Committee and the remaining 27 % were Government –Aided Schools.
- Out of the total schools surveyed, 94% schools responded that they have the provision to monitor classroom teaching regularly and 6% schools didn't have any provision to monitor classroom teaching in class V
- Out of the total schools surveyed, 95% schools responded that they have the provision to monitor classroom teaching regularly and 5% schools didn't have any provision to monitor classroom teaching in class VIII
- Classroom teaching was found to be monitored by 91% (HM), Peer Teacher (9%) in class II.
- Classroom teaching of about 87% schools were monitored by the Head of the School and 13% schools were monitored by the peer teachers in class V
- Classroom teaching of about 92% schools were monitored by the Head of the School and 6% schools were monitored by the peer teachers and only 2% schools were monitored by others in class VIII.
- In class VIII, Computers were available in almost 77% schools; internet connections were available in 78% schools. But internet connections for teachers were available in 72% schools and only 32% schools responded that internet facility were also accessible for students. Telephones facilities were there for 90% schools and television was available in 62% schools. Hence, it can be interpreted that E-Learning poses a concern for the schools.
- 77% students responded that they got homework in Language regularly, 78% in Mathematics, 76% students in Science and 74% students in Social Science also responded that they got homework regularly in Class VIII.
- In 92% schools CCE Scheme is being implemented whereas only 8% schools responded that they do not follow CCE Scheme at Primary Level.
- Of the total sample school 96% schools revealed that they have received instructional material on CCE where as only 4% schools did not receive any Instructional Material at Primary and Upper Primary Level.
- In 94% Schools CCE scheme is being implemented whereas 6% schools responded that they do not follow CCE scheme in Class VIII
- Out of total sample schools 81% of schools have received Training Programme on CCE whereas 19 % schools have not received any Training on CCE.
- More than 82% schools were visited by BRC/CRC Personnel.
- VEC SMC AEC play an important role in the Functioning of majority (63 .5%) of schools followed by PTA (34.9%), MTA (2%) at Primary level.
- 73% schools VEC/ SMC/ AEC are functioning, in 24% school's PTA and in 3% schools MTA are playing their

role in smooth functioning of schools in Class VIII

## STUDENTS

- The data in this Study is derived from Questionnaires completed by students studying in 150 schools of 6 Districts of Delhi State.

- The Survey tested about 5886 students in Language, Mathematics in class II, about 7208 students in language, Mathematics & EVS in class V and about 13906 students in language, Science, Social Science and Mathematics in class VIII.

- Majority of Students in Class II (90.31 %) were in the Age Group 7 to 9 years however about 8 % were in the age group of 10 years in Class II whereas very few were found (0.98 %) in the age group of 11 to 14 years.

- 80% students of Class II belong to the Urban population and 20% students belong to Rural population

- 88% students of Class V belong to the schools in Urban areas and 12% students belong to the schools in the Rural areas

- 88% schools from urban areas and 12% schools from rural areas were taken for this study in class VIII.

- 18% of those in the survey were SC students, 3% ST students, 11% OBC students, and 68% Other students at Primary Level

- 19% of those in the survey were SC students, 5 % ST students, 12% OBC students, and 64% were other students in Class VIII

- Around 46% of students had reported that they attended Pre-Primary classes and 54% of students had reported that they did not attend Pre-Primary Classes.

- 79% students of class II and 75 % students of class V used same Language at home as used in school.

- 77% students used same language at home as used in school, whereas 23% students did not use same language at home as used in school in class VIII.

- Around 52% of students had three or more siblings and 11% of students had no siblings.

- More than 61% of students reported getting help in their studies from different members of their families such as father, mother, elder brother and sister, and 39% of students reported that they did not get any help from anybody at Primary level.

- 66% of sampled students responded that they get help in their study at home whereas 34% students do not get any help from home in their study in class VIII.

- In view of the importance of Literacy Resources in enhancing the learning of the students, information was sought about the availability of some literacy resources, e.g., Calculator, Computer, Study Desk, Dictionary, Internet, Daily Newspapers and Magazines at Home. A wide variation from Television (92%) to internet access (4.2%) was observed.

- Drawing (85.2 %), Playing (98.2 %) and Chatting (89.3) were found to be major activities at Home.

- It is found that students mostly used Television (94.2%) rather than other resources. Only 40.5% students refer newspapers, 22.5% referred magazine, (41.6% read story books/ comics, 20.7% used computer and 14.6% used internet as well in class V

- 71% students responded that they got homework in Language regularly, 70% in Mathematics

- and only 66% students said that they got homework in EVS in Class V.

- 58% students take Private Tutions for their studies other than school and 42 % students study on their own at home and were dependent upon the classroom teaching learning activities in Primary Classes.

- 77% students like Language subject, whereas 58% students like Mathematics and 66% students like Science and Social Science. It is also found that 20 % in language and 29% in mathematics subject, 28% students in Science and Social Science were very confused about their liking and disliking of concerned subjects and 3% students dislike Language, 13 % students dislike Mathematics, 7% students dislike Science and Social science in class VIII.

- The Study indicates that, overall only 4% of students were physically challenged in class II & V whereas 2% of students were found differently-abled in class VIII.

- Of Class V Students surveyed, only 5.5% students' Fathers had education up to Degree and above, 13.3% had Education up to Higher or Senior Secondary School, 17.5% have Education up to Secondary level, 18.1% have Education up to Elementary level, 18% had Education up to Primary level, whereas 11.9% Fathers were just Literate and remaining 10.8% were Illiterate .

- Of Class VIII Students surveyed, only 4.3% students' Fathers' had Education up to Degree and above, 9.8% had education up to Higher or Senior Secondary School, 16.7% up to Secondary level, 17.2% had Education up to Elementary Level , 20.4% had education up to Primary Level whereas 16.8% are just Literate and 12.9% are Illiterate.

✶ Out of the Class VIII students surveyed it is seen that Educational Status of Mothers is below than that of the Fathers and higher % of Mothers were Illiterate. Only 2.1% students' Mothers' had education up to Degree and above, 5.3% Mothers had Education up to Higher or Senior Secondary School, 10% up to Secondary Level, 11.4% had Education up to Elementary Level, 16.9% had Education up to Primary Level, 24.3% were just Literate and 28.7% Illiterate.

- Out of the Class II Students surveyed, Fathers' (53.1%) and Mothers' (23.0 %), Occupations were found to be as Agricultural Labour or Domestic Servant or Daily Wager or Street Vender. However 63.3% Mothers were engaged in Household Activities

- Out of the Class V Students surveyed Occupation of most of the Fathers (39.1%) were as Agricultural labour or Domestic Servant or Daily wagers or street vendors and only 20.7% of Fathers were Skilled Worker or worked in

office and 19.3% were Shopkeepers or Businessmen, 3% of worked as Manager or Senior Officer/ Professionals and about 2% were Teachers or Lecturers or Professors. Besides these 3.6% Fathers were Unemployed and 3.1% were engaged in household activities.

- Out of the Class VIII Students Occupation of most of the Fathers (43.2%) were as Agricultural labour or domestic servant or daily wage or street vendor, 20.7% fathers are Shopkeeper or engaged in some business and only 20.7% of fathers were Skilled Workers or work in office. 8.8% students also responded that their fathers were Farmers, 2.4% of fathers worked as Manager or Senior Officer / Professionals and about 1.9% of fathers were Teachers ,Lecturers or Professor, 2.3% were engaged in doing their Household activities and 2.1% fathers were Unemployed..

- Out of the Class VIII Students Occupation of most of the Mothers it was found that (76.5%) were Housewives and 11% worked as Agricultural Labour or Domestic Servant or Daily Wage or Street Vendor, 2.9% Mothers were Shopkeeper or engaged in some Business. Only 2.6% of mothers were Skilled Worker and also same proportion of Mothers (2.6%) were Farmers whereas 0.9% were Teachers or Lecturer or Professor and 2.7% were Unemployed.

## TEACHERS

- Most of the teachers teaching at Primary Level, (35.9%) who responded fall in the age group of 31-40 years followed by 30.7% that fall in between 41-50 years. There were 16.2% teachers below 30 years of age and 17.3% were in the age group of 51-65 years.

- Of the teachers from class VIII who took part in this survey, 57% were Male and 43% were Female

- Most of the Teachers teaching in Class VIII (37.2%) were found in the age group of 41-50 years followed by 29.7% fall in between 31-40 years. There were 16.6% were in the age group of 51-65 years and 16.2% teachers were below 30 years old

- Of the total 515 teachers teaching in Class VIII , a majority proportion(67%) of teachers fall in the category of Others, 15% teachers were OBC, 13% were SC and only 5% teachers were under ST category.

- Majority of the Teachers teaching class VIII, (77.3%) were having Post Graduate Qualification, 20.9% were having Graduation, 1.2% teachers were having Sr. Secondary Qualification, and only 6% were having Qualification of Secondary Education.

- Professional Qualification of sampled teachers .teaching class VIII, it was found that a majority of teachers(85.9%) were having qualification of Graduation level followed by 12.3% of Post Graduation level, 1.6% of teachers were trained with Elementary Teacher Training and only .2 % teachers were Untrained.

- Majority of teachers teaching in class VIII, (81%) were Regular teachers, 15% teachers were Adhoc and Temporary, 3% teachers were Para teacher/ Shiksha Karmi and only 1% teachers were against Leave Vacancy

- Majority of Teachers teaching Class VIII, (71%) have attended In-Service Training Programmes whereas 29% teachers did not receive any In-Service Training.

- Of the Sample Surveyed for Class VIII ,66.3% teachers teaching at Elementary Level(Class VIII) have received 2-3 days Training Programme, 23.2% teachers have received 1 day Training Programme, 7.1% teachers have received 4-6 days Training Programme, 2.1% teachers have received 6-9 days Training Programme and only 1.3% teachers have received 10 or more days Training Programme during In-Service training in the year 2011-12 & 2012-13

- Regarding availability of TLM and other Material ,most of the schools (about 93 %) were having TLM but less than 50% (46.9%) were using these resources whereas 5.6% resource in different category were not used by teachers at all in Class VIII..

## STUDENTS ACHIEVEMENT IN CLASS II, CLASS V & CLASS VIII I

### STUDENTS' ACHIEVEMENT IN CLASS II I.a. Achievement in Mathematics

**Theme wise Average Performance of Students of Class II in Mathematics** The following table highlights theme wise performance of class II students in Mathematics. This table is drawn from the above analysis of the performance of students in the items under various themes in Mathematics test Table :Theme wise Average Performance of Students of Class II in Mathematics

S.No.	Theme	Average Performance of Students(%correct responses)
1	Number System	54.07
2	Geometry	55.1
3	Data Handling & Pattern	51.05

4	Measurement	65.85
5	Money	44.2

The table above indicates that 65.85 % students solved the problems on Measurement and 55.1% students were able to solve the problems based on Geometry. 54.07% students were able to solve problems related to number system. Further, 51.05% students solved the questions related to data handling and pattern and only 44.2% students were able to solve the problems based on Money. Hence it can be interpreted that overall performance of students of class II in Mathematics is quite satisfactory (54.05%).

**Summary of Achievement of Class II Students in Mathematics** On the basis of the performance of the students in the test, it may be concluded that the items based on ‘Measurement’ (66%) were found to be easy as compared to those based on ‘Geometry’ (55%) whereas items based on ‘Number system’(54%) , ‘Data handling’(51%) and ‘Money’(44%) were found to be the most difficult for the students surveyed at Class II level.

- In Mathematics average score of six districts was 250 with Standard Error of 2.9.
- West A students attained highest average score (274) with Standard Error 8.5.
- Overall, no significant difference was found in the performance of boys and girls.
- Performance of Urban students found significantly higher than that of the rural students.
- The achievement level of state students was 56% i.e. 56% students of the Class 2 of Delhi on an average attempted the Mathematics test correctly.
- West A district has highest achievement percentage (68%) and North East has the lowest percentage score (44%).

### **I.b. STUDENTS’ ACHIEVEMENT IN LANGUAGE**

**Theme wise Average Performance of Students of Class II in Language** The following table highlights theme wise performance of class II students in Language. This table is drawn from the above analysis of the performance of students in the items under various themes in Language test Table: **Theme wise Average Performance of Students of Class II in Language**

S.No.	Theme	Average Performance of Students(%correct responses)
1	Reading with Comprehension	67.79
2	Application	62.7
3	Aesthetics	65.3
4	Rhyming	65.3
5	Understanding	74.6
6	Imagination	62.4
7	Environmental awareness	63.7
8	Reading	50.85
9	Identification of words	46.1
10	Picture reading	53.27
11	Vocabulary	86.8
12	Identification of objects	86.8
13	Grammar in context	84.5



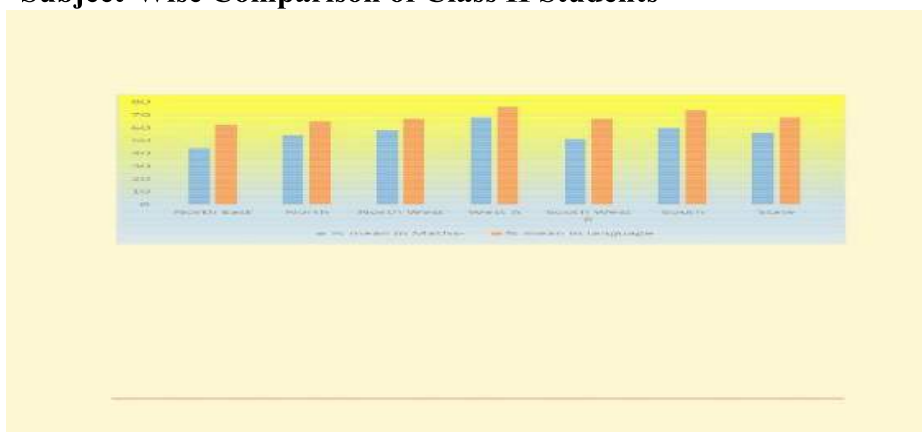
The table reveals that students performed extremely well in questions related to identification of objects (87%), vocabulary(87%) and Grammar in context(84.5%). Further students did very well in items related to understanding (74.6%). Furthermore students also did quite well in items related to reading with comprehension (67.8%),, aesthetics (65.3%), rhyming(65.3%), environmental awareness(63.7%), application(62.7%) and imagination(62.4%).Performance of students in items related to picture reading (53.27%) and reading (50.85%)was just satisfactory. Students (46.1%) were weak in items related to identification of words.

**Summary of Achievement of Class II Students in Language (Hindi) From the above tables and findings it may be inferred that the students have understood the basic concepts and acquired the basic skills in Hindi as the table shows that overall 68% students on an average were able to respond correctly to all items in the test. However some items were responded correctly by few students *i.e.* Identification of Words (46%), Simple Reading (51%) and Picture Reading (53%).**

- In Language average score of six districts was 251 with Standard Error of 2.4.
- West A students scored highest average score (266) with standard Error 6.7.
- Overall, no significant difference was found in the performance of boys and girls.
- Performance of Urban students was found significantly higher than that of the rural students.
- The achievement level of state students was 68% *i.e.* students of the Class 2 of Delhi on an average secured 68% marks.
- West A district has highest achievement percentage (76%) and North East has the lowest percentage score (62%).

## Subject-wise Comparison of Performance of Students of Class II in Different Districts

### Subject-Wise Comparison of Class II Students



The figure above shows that achievement of students in Language is better than in Mathematics. Achievement of West A in language and in Mathematics is better than all other districts. The achievement of District North East is the lowest in both Mathematics and language.

## II. STUDENTS' ACHIEVEMENT IN CLASS-V

### II.a. STUDENTS' ACHIEVEMENT IN MATHEMATICS

**Theme wise Average Performance of Students of Class V in Mathematics The following table highlights theme wise performance of class V students in Mathematics. This table is drawn from the above analysis of the performance of students in the items under various themes in Mathematics test**

Table: Theme wise Average Performance of Students of Class V in Mathematics

S.No.	Theme	Average Performance of Students (%correct responses)
1.	Number System	41.0
2.	Geometry	34.1

3.	Data Handling & Pattern	40.5
4.	Measurement	30.5
5.	Time	33.1

The table above reveals that 34.1% students solved the problems on Geometry easily where as only 33% students were able to solve the problems based on time. About 41% students were able to solve problems related to data handling and pattern. Also 41% students solved the problems on number system. Whereas about 31% students were able to solve problems related to measurement.

**Summary of Achievement of Class V Students in Mathematics** On the basis of the performance of the students in the test, it may be concluded that the items based on ‘Geometry’(34%) were found to be easy as compared to those based on ‘Number System’(41%) and ‘Data Handling and Pattern’(41%). Whereas items based on ‘Measurement’ (31%) and ‘Time’ (33%) were found to be the most difficult for the students surveyed at Class V level. The responses of the students on various questions are eye opener. It clearly indicates misconceptions throughout the mathematical domains. These data could be utilized to reinforce training of teachers and augment classroom teaching-learning in schools of Delhi.

- In Mathematics average score of six districts was 251 with Standard Error of 2.5.
- West A students attained highest average score (263) with Standard Error 5.0.
- Overall, no significant difference was found in the performance of boys and girls.
- no significant difference was found in the performance of urban and rural students.
- The achievement level of state students was 37% i.e. students of the Class 5 of Delhi on an average secured 37% marks in Mathematics.
- West A district has highest achievement percentage (41%) and North East, North West and South have the lowest percentage score (35%).

## II.b. STUDENTS’ ACHIEVEMENT IN LANGUAGE

**Theme wise Average Performance of Students of Class V in Language (Hindi)** The following table highlights the theme wise performance of class V students in Language (Hindi). This table is drawn from the above analysis of the performance of students in the items under various themes in Language (Hindi) test Table: Theme wise Average Performance of Students of Class V in Language (Hindi)

S.No.	Theme	Average Performance of Students(%correct responses)
1	Reading with Comprehension	49.55
2	Application	27.1
3	Description	50.00
4	Reasoning	34.86
5	Reading	69.4
6	Observation	53.63
7	Vocabulary	44.1
8	Grammar	56.3
9	Picture reading	61.12
10	Environmental awareness	50.05

11	Knowledge of letter writing format	59.05
12	Recall	49.4
13	Imagination	55.6
14	General Awareness	56.3
15	Spelling	37.6

Table above indicates that students of class V performed very well in items related to reading (69.4%), Picture Reading (61.12%), Further, the students did well in items related to knowledge of letter writing format (59.05%), grammar - (56.3%), General awareness (56.3%), imagination (55.6%), Observation (53.6%), Environmental Awareness (50.05). Furthermore, performance of students was satisfactory in the items related to description (50%), reading with comprehension (49.6%), recall (49.4%). Performance of students in items related to Vocabulary (44.1%), Spelling (37.6%) Reasoning (34.9%), application (27.1%) was not satisfactory.

The response patterns indicate students' problems mainly in the area of comprehension whether it was prose and poem. Simple grammatical errors were also seen. Further, students also faced difficulties in the area of recall, vocabulary, spelling, reasoning and application. This analysis may be utilized quite seriously for identifying areas of teachers' capacity building and improving classroom teaching-learning in schools with a view to enhancing quality of primary education to achieve the goals of RTE, 2009.

**Summary of Achievement of Class V Students in Language (Hindi) It is found from the table that overall 53% students on an average had command over Hindi language. However, very few students were able to attempt the questions correctly in items related to application (27%), reasoning (35%) and spelling (38%). Majority of students did well in items related to reading (69%) and picture reading (61%).**

- In language average score of six districts was 249 with Standard Error of 2.7.
- West A students scored highest average score (258) with standard Error 5.1.
- Overall performance by the girls in the state was significantly better than boys.
- Performance of Urban students was found significantly higher than that of the rural. The achievement level of state students was 51% *i.e.* students of the Class 5 of Delhi on an average secured 51% marks in Hindi.
- West A district has highest achievement percentage (55%) and North has the lowest percentage score (44%) students.

## **II.C. STUDENTS' ACHIEVEMENT IN ENVIRONMENTAL STUDIES (EVS) Theme wise Average Performance of Students of Class V in EVS**

The following table highlights theme wise performance of class V students in EVS. This table is drawn from the above analysis of the performance of students in the items under various themes in EVS test

**Table: Theme wise Average Performance of Students of Class V in EVS**

S.No.	Theme	Average Performance of Students (%correct responses)
1.	Water	53.6
2.	Animals and Plants	53.14
3.	Travel	46.88
4.	Food	54.96
5.	Shelter	58.7
6.	Interpersonal relations	65.6
7.	Family and Friends	59.9
8.	How Do we Make Things	44.6



9.	Work and Play	53.37
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It is indicated by the table that 65.6% students responded correctly to the questions on Interpersonal relations. Further, students seem to be doing well in items related to family and friends (60%) and shelter (58.7%). Students performed reasonably well in items related to food (55%), water (53.6%), animals and plants (53.14%) and work and play (53.37%). Students seem to be not doing well in items related to travel (47%), and how do we make things (44.6%).

#### Summary of Achievement of Class V Students in EVS

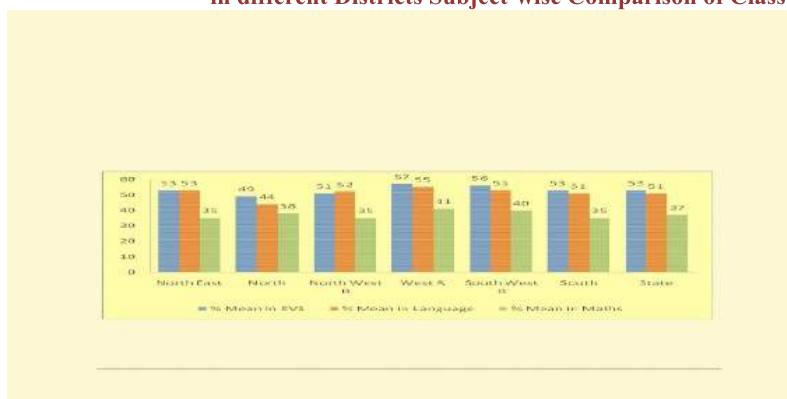
On the basis of the performance of the students in the test, it may be concluded that the items based on 'Interpersonal relations' were found to be easy 'as compared to those based on 'Water', 'Shelter', 'Family and Friends', 'Work and Play' 'Whereas items based on 'How do we make things ', 'Travel', 'Food', and 'Animals and Plants' were found to be the most difficult for the students surveyed at Class V level. The results of survey can very well be used for need assessment for in service training of teachers and thereby improving the classroom instruction in EVS in schools of Delhi.

- In EVS average score of six districts was 250 with Standard Error of 2.5.

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- West A students scored highest average score (261) with standard Error 5.3.
- There was no significant difference in the performance of girls and boys.
- Performance of Urban students was found significantly higher than that of the rural students.
- The achievement level of state students was 53% *i.e.* students of the Class 5 of Delhi on an average secured 53% marks in EVS.
- West A district has highest achievement percentage (57%) and North has the lowest percentage score (49%).

#### Subject-wise Comparison of Performance of Students of Class V in different Districts Subject-wise Comparison of Class V Students



The above figure shows that achievement of students in EVS is best followed by their achievement in language which is further followed by their achievement in Mathematics.

### III. STUDENTS' ACHIEVEMENT IN CLASS VIII.

#### III. a. STUDENTS' ACHIEVEMENT IN MATHEMATICS

**Theme wise Average Performance of Students of Class VIII in Mathematics** The following table highlights theme wise performance of class VIII students in Mathematics. This table is drawn from the above analysis of the performance of students in the items under various themes in Mathematics test.

Table: Theme wise Average Performance of Students of Class VIII in Mathematics

S.No.	Theme	Percent
1.	Number System	27
2.	Mensuration	23
3.	Geometry	28
4.	Algebra	30
5.	Data handling and introduction to graph	37
6.	Ratio and proportion	28

The table above reveals that only 23% students solved the problems on Mensuration, only 27 % students were able

to solve problems based on Number system, nearly 28% students were able to solve problems based on Geometry and Ratio and Proportion, merely 30% students were able to solve problems based on Algebra and about 37% students were able to solve problems based on data handling and introduction to graph.

**Summary of Achievement of Class VIII Students in Mathematics On the basis of the performance of the students in the test, it may be concluded that almost all the items based on different themes: Number System, Mensuration, Geometry, Algebra , Data handling and introduction to graph and Ratio and Proportion were found to be difficult.**

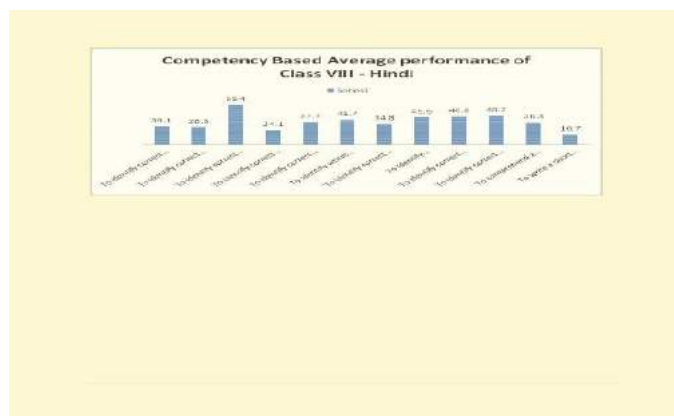
- In Mathematics average score of six districts was 250 with Standard Error of 2.5.
- West A students attained highest average score (259) with Standard Error 6.2.
- Overall, no significant difference was found in the performance of boys and girls.
- Performance of Urban students found significantly higher than that of the rural students..
- The achievement level of state students was 28% *i.e.* 28% of the students of the Class 8 of Delhi correctly attempted Mathematics test
- West A and South West B districts have highest achievement percentage (29%) and District North West has the lowest percentage score (24%).

### III.b. STUDENTS' ACHIEVEMENT IN LANGUAGE

**Competency wise Performance of Students of Class VIII in Language (Hindi)** The following table highlights competency wise performance of Class VIII students in Language (Hindi). This table is drawn from the above analysis of the performance of students in the items under various competencies in Language (Hindi) test Table: **Competency wise Analysis of Performance of Students of Class VIII in Language**

S.No.	Competencies	Average Performance of Students of Students (%correct responses)
1	To identify correct usage of <i>stri-linga</i>	30.1
2	To identify correct <i>kaarak</i>	28.8
3	To identify correct <i>bhaav</i>	66.4
4	To identify correct word for a clause	24.1
5	To identify correct idiom for a given context	37.7
6	To identify words with given prefix	41.7
7	To identify correct suffix in a given word	34.8
8	To identify incorrect synonym of a given word	45.6
9	To identify correct usage of verb in context	46.8
10	To identify correct usage of pronoun	48.2
11	To comprehend a given literary text	36.3
12	To write a short paragraph	16.7

The table reveals that students performed well in question related to identification of correct bhaav (66.4%). Most of the students performed satisfactorily in items related to correct usage of pronoun(48.2%), incorrect synonym of a given word(45.6%), correct usage of verb in context (46.8%), identify words with given prefix(41.7%). A good proportion of students have also not performed satisfactorily in items related to correct idiom for a given context (37.7%), comprehension of a given literary text (36.3%), identifying correct suffix in a given word (34.8%), and identifying correct usage of stri-linga (30.1%). Students were also found to be weak in items related to identify correct kaarak (28.8%), identify correct word for a clause (24.1%) and write a short paragraph (16.7%).



**Summary of Achievement of Class VIII Students in Language (Hindi)** It is found from the table that overall 53% students on an average had command over Hindi language. However, very few students were able to attempt the questions correctly in items related to application (27%), reasoning (35%) and spelling (38%). Majority of students did well in items related to reading (69%) and picture reading (61%).

- In language average score of six districts was 251 with Standard Error of 2.3.
- North and West A students scored highest average score (259) with standard Error 5.9 and 3.7 respectively.
- Overall there was no significant difference between the performance of boys and girls in the state.
- Overall there was no significant difference between the performance of Urban and rural students except in the district North where the performance of urban students was significantly higher than those of rural students.
- The achievement level of state students was 33% *i.e.* students of the Class 8 of Delhi on an average secured 33% marks in Hindi.
- District North has highest achievement percentage (36%) and North West B has the lowest percentage score (30%).

### III.c. STUDENTS' ACHIEVEMENT IN SCIENCE

**Theme wise Average Performance of Students of Class VIII in Science** The following table highlights theme wise performance of Class VIII students in Science. This table is drawn from the above analysis of the performance of students in the items under various themes in Science test Table: **Theme wise Average Performance of Students of Class VIII in Science**

S.No.	Theme	Average Performance of Students (% correct responses)
1.	Material : Metal & Non Metal	39
2.	Adolescence	40
3.	Cell Structure	47
4.	Chemical Effects of EC	38
5.	Coal & Petroleum	34
6.	Combustion & flame	37
7.	Conservation of P & A	34
8.	Crop Production & Management	35
9.	Force and Pressure	54
10.	Friction	32
11.	Light	36
12.	Microorganisms	27
13.	Reproduction in animals	44
14.	Some natural phenomena	43

15.	Sound	40
16.	Stars & solar System	35
17.	Synthetic Fibres & plastic	31

The table above indicates that 54% students responded correctly to the questions based on Force and Pressure. Students seem to be doing satisfactorily in items related to Cell Structure (47%), Reproduction in animals (44%) and some natural phenomena (43%). Further, students could not do well in items related to Adolescence (40%), Sound (40%), Material: Metal & Non Metal

(39%), Chemical Effects of EC (38%), Combustion & flame (37%), Light (36%). Students seems to be doing poor in items related to Crop Production & Management (35%), Stars & solar System (35%), Coal & Petroleum (34%), Conservation of Plants and Animals (34%), Friction (32%) and Synthetic Fibres & plastic (31%) and students seems to have lot of difficulty in answering the questions related to Microorganisms as only 27% students attempted these questions correctly. Hence, it can be interpreted that overall the performance of students in science is not satisfactory which may be a concern for teaching of Science in schools.

**Summary of Achievement of Class VIII Students in Science On the basis of the performance of the students in the test, it may be concluded that the items based on 'Force and Pressure' and 'Cell Structure', were found to be easy 'as compared to those based on 'Reproduction in animals', 'Some natural phenomenon', 'Sound' and 'Adolescence'. Whereas items based on 'Material : Metal & Non Metal', 'Chemical Effects of EC', 'Combustion & flame', 'Light, Stars & solar System', 'Crop Production & Management', 'Conservation of P & A', 'Coal & Petroleum', 'Friction', 'Synthetic Fibres & plastic' and 'Microorganisms' were found to be the most difficult for the students surveyed at Class VIII level.**

In Science average score of six districts was 250 with Standard Error of 6.5.

- West A students scored highest average score (262) with standard Error 21.
- There was no significant difference in the performance of girls and boys .
- There was no significant difference in the performance of rural and urban students except in the district South where urban students performed better than rural students.
- The achievement level of state students was 38% *i.e.* students of the Class 8 of Delhi on an average secured 38% marks in Science.
- West A and South district has highest achievement percentage (41%) and North West B has the lowest percentage score (30%).

### III.d. STUDENTS' ACHIEVEMENT IN SOCIAL SCIENCE

**Domain wise Average Performance of Students of Class VIII in Social Science** The following table highlights domain wise performance of class VIII students in Social Science. This table is drawn from the above analysis of the performance of students in the items under various domains in Social Science test.

Table : **Domain wise Average Performance of Students of Class VIII in Social Science**

S.No.	Domain	Percent
1.	History	36
2.	Geography	40
3.	Political Science	36

The table reveals that only 36% students were able to answer questions based on History, 40 % students were able to answer questions based on Geography, nearly 36% students were able to answer questions based on Political Science. Hence, it may be interpreted that the overall performance of students in Social science is not satisfactory.\

**Summary of Achievement of Class VIII Students in Social Science On the basis of the performance of the students in the test, it may be concluded that almost all the items based on different domains: History, geography and Political Science were found to be difficult.**

- In Social Science average score of six districts was 251 with Standard Error of 2.5.
- West A students attained highest average score (266) with Standard Error 6.1.
- Overall, no significant difference was found in the performance of boys and girls.

- Overall, no significant difference was found in the performance of Urban and rural students except in District North where performance of urban students was significantly better than the rural students.
  - The achievement level of state students was 37% *i.e.* 37% of the students of the Class 8 of Delhi correctly attempted Social Science test
- West A and North East districts have highest achievement percentage (41) and North West B has the lowest percentage score (27%).

### III.e. Subject-wise Comparison of Performance of Students of Class VIII in Different Districts



The Figure above shows that achievement of students in Social Science is highest in North East and West A (41%) Districts and also their performance is higher than the State's Average (37%), whereas it is lowest in North West (27%). Achievement of students in Science is highest in Districts South and West A (41%) and also their performance is higher than the state's average (38%), whereas it is lowest in North West (30%). Achievement of students in Language is highest in district North (36%) and also its performance is higher than the state's average (33%), whereas it is lowest in North West (30%). Achievement of students in Mathematics is highest in Districts West A and South West B (29%) and also its performance is slightly higher than the state's average (28%), whereas it is lowest in North West (24%).

- From the above interpretation/scores secured by the students, it can be concluded that performance of class VIII in all the four subjects is not satisfactory which may be a major concern for all the Stakeholders and Policy Makers.

### IV. Trend of Performance in HINDI & MATHEMATICS for class II, V & VIII : A. Comparison among Percentage (%) Mean score of Hindi in class II, V & VIII



The above figure reveals that the performance of students from class II to class VIII in Language (Hindi) is falling with the promotion to the next grade. In class II the mean % score of state is 68%, 51% in class V and lowest in class VIII *i.e.* 33%.

### B. Comparison among Percentage (%) Mean score of Mathematics in class II, V & VIII



The above figure reveals that the performance of students from class II to class VIII in Mathematics is falling with the promotion to the next grade. In class II the mean % score of state is 56%, 37% in class V and lowest in class VIII *i.e.* 28%.

Hence, from the above two figures it can be interpreted that the declining trend with the succeeding classes pose a serious concern for the quality elementary education and needs due attention by the stakeholders and policy makers.

### V. Comparison of the Achievement of Students on the Basis of Gender and Location:

The study highlighted that Gender-wise there was no significant difference in the performance of girls and boys except in language of class V where *Girls* supersede *Boys*. So far Location is concerned at Primary level students of urban areas out performed than their rural counterparts except in Mathematics in class V where there was no significant difference found between the two groups. At Upper Primary level *i.e.* in class VIII there was no significant difference between the two groups except in Mathematics where students of urban areas out performed than their rural counterparts.

### Limitations of the Study

- There are 13 Educational Districts out of which 6 Districts have been selected for data collection namely North East, North, North West, West, A, South West B, and South.
  - Only Government run schools under Directorate of Education, MCD, NDMC and DCB have been covered in the Sample.
  - Out of 1043 schools having Elementary Classes, 150 schools *i.e.* 25 school each of the six Districts were selected in the sample for class VIII.
  - Out of 2294 schools having Primary Classes, only 150 schools were selected in class II and 150 schools for Class V were selected.
  - 60 students each in classes II, V and VIII in different subjects were covered in the Sampled Data was collected through the Faculty and Trainees of District Institute of Education and Training (DIETs) of the respective Districts.
  - Achievement Tests were administered only in Language (Hindi) and Mathematics in Class II, in Language (Hindi), Mathematics and Environmental Studies (EVS) in class V and Language (Hindi), Mathematics, Science and Social Science in Class VIII.
  - Maximum of only 2 teachers for each class were administered the TQ.
  - Achievement of students in Scholastic areas only was studied.
- Due to lack of time and required manpower it could not be possible for the research team to fulfill the 2<sup>nd</sup> objective *i.e.* “To compare achievement level of students of different districts in Mathematics, Social Science, Science and Hindi subject”.

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