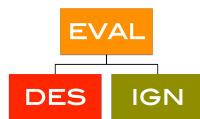# School Education in India: A Handbook

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About the Handbook

Globally, the rate of innovation has been unprecedented over the last 30 years, leading to changes in human life that were unforeseeable three decades ago. If this rate of change is anything to go by, we are currently unprepared to predict *what* the physical, social and knowledge environment will be like, three decades from now. The only way to prepare for this undiscovered and unforeseeable future will be to foster the ability to think critically, logically and scientifically; and this can only be advanced through an education system that focuses precisely on these skills through advancement of enquiry.

Education in India has recently earned worldwide attention not only from educationists, but also from researchers, entrepreneurs, technologists, innovators, investors, international agencies and the government. Innumerable interventions are being designed and implemented on a daily basis to improve the quality of education in the country.

At Evaldesign, we believe that good data is fundamental to the design of effective interventions. This publication has been prepared as a fact book for an introduction to the Indian education system. It provides a brief history of the evolution of the Indian Education system and an overview of the structure and vital statistics to orient the reader with respect to the scale of education in India.

About Evaldesign

Evaldesign is a Research Consulting Firm set up in 2013. Our mission is to help donors, investors, governments and non-profits in education, innovate and implement programs by providing high quality consulting on project roll-outs for effective data collection, quick feedback and impact evaluation.

About the Authors

Akanksha Bapna is the Founder and CEO of Evaldesign. She has worked extensively on K-12 Education, bridging the gap between policy, research and practice. In the past, Akanksha has worked with the Abdul Latif Jameel – Poverty Action Lab of MIT, to build education research capacity for the Haryana State Government, Department of School Education, where she set up a large research team for in-house research by the Department. Akanksha has extensive analytical and quantitative experience in experimental design, both in the field of science as well as in the social sciences. Akanksha holds a Ph.D. in Biochemistry from the University of Cambridge and a Masters' degree in International Education Policy from Harvard University.

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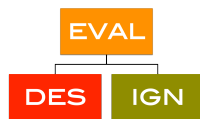
Acknowledgements

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Disclaimer

All links and references have been checked for accuracy at the time of publication. Due to the recent change in government, a number of the government website based URLs can be subject to frequent change

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1. History of Education in India

The post independence era in India witnessed an increased emphasis on education as a means of national development. Educational reconstruction was reviewed by a number of committees and commissions including the University Education Commission (1948-49) and the Secondary Education Commission (1952-53). The Education Commission (1964-66) was appointed to advise the Government of India (GoI) on the general principles and policies for the development of education at all stages and in all aspects. The report of this Education Commission became what is now known as the Kothari Commission Report (*1*).

1.1. The Kothari Commission (1964-66)

The Kothari Commission was appointed with a mandate to conduct a comprehensive review of the entire Indian educational system. The commission emphasized education as the most powerful instrument of national development and laid out the objectives of education as increased productivity, greater social and national integration, modernization, and the development of social, moral and spiritual values.

For increased productivity, the commission recommended that work-experience should be introduced as an integral part of all education, be it general or vocational. For greater social and national integration the recommendation was the Common School System (CSS) of public education that would bring the different social classes and groups together and thus promote the emergence of an egalitarian and integrated society. It emphasized the promotion of science and technology in order to promote modernization, and lastly, it recommended that a general study of the different religions of the world as one of the means of promoting social, moral and spiritual values.

The commission also recommended a new educational structure, which stated that:

- General education should last for a period of 10 years, including 4 years of lower primary, 3 years of higher primary and 3 years of lower secondary education;
- Higher secondary education should be fixed for 2 years, and;
- Degree course should be of 3 years

This structural pattern thus recommended by the commission is commonly known as the 10+2+3 system that is followed in India to date, with the exception of professional degree courses (*1*).

1.2. The National Policy on Education

The National Policy of Education (NPE) (1968) was a policy formulated by the GoI to promote education. The policy covers education from the elementary level to college education in both rural and urban India. The first NPE was put forth in 1968 by the government of Prime Minister Indira Gandhi, and the second by Prime Minister Rajiv Gandhi in 1986. The NPE was based on the recommendations of the Kothari Commission Report. It laid stress on need for radical reconstruction of the education system to

improve its quality at all stages, and focused attention to science and technology, the cultivation of moral values and a closer relation between education and the life of people. Some of the aspects covered by the NPE (1968) included free and compulsory education for all children up to the age of 14, status, emoluments and education of teachers, the development of languages, education for agriculture and industry, the improvement of reliability and validity of examinations, a continuous evaluation process and recognition of part time and distance learning courses.

In 1986, the NPE was reviewed. It emphasized equal opportunities for marginalized sections of the country and the removal of disparity through scholarships, adult education and open universities, especially for rural India. The NPE called for a child-centered approach in primary education, and launched Operation Blackboard to improve primary schools nationwide.
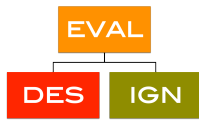
The NPE was revised yet again in 1992 by the P.V. Narasimha Rao Government and stated that the aim of education was to keep intact India's values of secularism, socialism, democracy and professional ethics. With regards to elementary education the NPE made three commitments (*2-4*):

- Universal access and enrolment
- Universal retention of children up to age of 14
- Improvement in the quality of education

1.3. National Curriculum Framework

The NPE proposed a national framework for curriculum as a means of evolving a national system of education capable of responding to India's diversity of geographical and cultural milieus while ensuring a common core of values along with academic components. The National Curriculum Framework (NCF) was therefore conceptualized as a guiding document serving as a reference for the implementation strategy of curriculum, actions and benchmarks for pedagogy, monitoring and evaluation in the country as envisioned by the NPE.

The NCF was designed by the National Council for Educational Research and Training (NCERT) in 1975, and subsequently revised in the years 1988, 2000 and 2005. The first framework from 1975 focused on designing a curriculum related to life, needs and aspirations of people. It also laid emphasis on work experience as a central feature of school education at all levels. The most recent NCF from 2005 focuses on pedagogy and the plurality of textbooks to make education more contextual. It also draws attention to reorganization of the examination system and the training of teachers in order to encourage critical thinking and holistic learning in schools (*5-8*).

2. Government Institutions

A number of government bodies and institutions in India are involved in the implementation of strategies and programs to improve the access to, and quality of education in the country. These government bodies serve various functions, from defining the goals of education to teacher training and upholding the rights of children. Details of some of the relevant institutions and bodies are presented in this section.
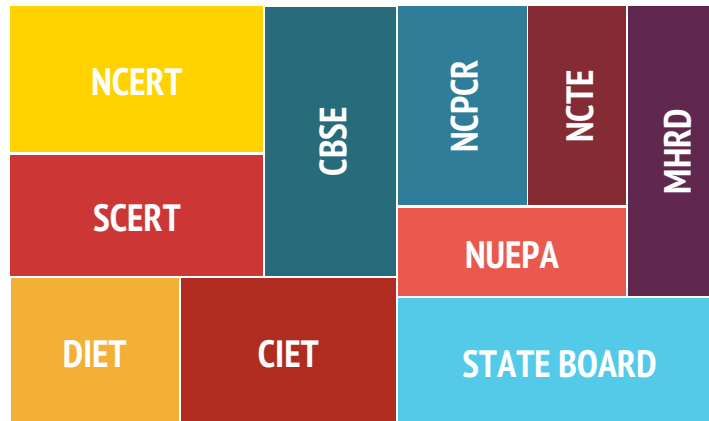

Figure 1.   *Major government bodies involved in education in India*

2.1. MHRD

The Ministry of Human Resource and Development was created on September 26, 1985, through the 174th amendment to the Government of India (Allocation of Business) Rules, 1961. It's the Ministry of the central government that is responsible for the development of human resources. The Ministry is divided into two departments: the Department of School Education and Literacy, which deals with primary and secondary education, adult education and literacy, and the Department of Higher Education, which deals with university education, technical education and scholarships (*9*).

2.2. CABE

The Central Advisory Board of Education is the oldest advisory body of the GoI in education was first established in 1920 and dissolved in 1923 as a measure of economy. It was revived in 1935 and has been in existence ever since. Its main function is to advise central and state government in the field of education. CABE has a particularly important role to play at the present juncture in view of the significant socio-economic and socio-cultural developments taking place in the country and for the review of the National Policy on Education (18).

2.3. NCERT

The National Council of Educational Research and Training was registered as a Society under the Registration of Societies Act (Act XXI of 1860) on June6, 1961. It is the apex resource organization set up to assist and advise the central and state governments on academic matters related to school education. The NCERT is responsible for the implementation of the NCF, vocational education, and improving training of teachers. It also aims to undertake, aid, promote, coordinate research in all branches of education (10).

2.4. SCERT

State Councils of Educational Research and Training came into being following the NPE (1986) recommendation for the decentralization of teacher education. The SCERT works to implement the frameworks set up by the NCERT for admission, curriculum construction, course conduct, guidance, examination and certification of pre-service teacher training programs in the area of pre-primary teacher education and elementary education (11).
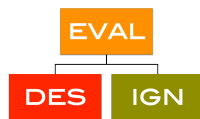
2.5. DIETs

District Institute of Education Training play the role of providing academic and resource support at the grass-roots level for the success of the various strategies and programmes being undertaken in the areas of elementary and adult education. DIETs were set up as institutes at the district level post the implementation of the NPE 1986 in approximately 500 districts across India to achieve Universalization of Elementary Education (UEE) and to improve the quality of elementary education. Pre-service teacher education and In-service teacher training are major responsibilities of the DIETs (12).

2.6. CBSE

The Central Board of Secondary Education was constituted in 1962. The Board was set up to prescribe conditions of examinations and conduct public examination at the end of Grades 10 and 12 and to grant qualifying certificates to successful candidates of the affiliated schools. Additionally the CBSE was also seen as a body that could fulfill the educational requirements of those students whose parents were employed in transferable jobs through affiliate institutions that would follow common academic standards and examination norms (13).

2.7. State and other Boards

In addition to the CBSE, a number of nationally recognized boards such as the Council for Indian School Certificate Examinations (CISCE) and the National Institute of Open Schooling (NIOS) also exist in the country. Moreover, every state has one or more state-specific boards, totaling 45 additional boards that are responsible for the academic affairs of the affiliated schools (14). Some Indian schools are also affiliated to international boards such as the International Baccalaureate (IB) and Cambridge International Examinations.

2.8. NUEPA

The National University of Educational Planning and Administration, established by the MHRD, is a premier organization dealing with capacity building and research in planning and management of education in India. NUEPA has its origin dating back to 1962 when UNESCO established the Asian Regional Centre for Educational Planners and Administrators, which later became the Asian Institute of Educational Planning and Administration in 1965. Thereafter, it was taken over by the GoI and renamed as the National Staff College for Educational Planners and Administrators. Subsequently, it became the National Institute of Educational Planning and Administration (NIEPA) in 1979. It was conferred a Deemed University status in 2006, thereby being renamed, yet again, to NUEPA (17).

2.9. NCTE

The NPE of 1986 envisaged the National Council for Teacher Education as a body with statutory status and necessary resources as a necessary first step for overhauling the system of teacher education. The NCTE came into existence in pursuance of the National Council for Teacher Education Act, 1993 with the objective to achieve planned and coordinated development of the teacher education system throughout the country and the regulation and proper maintenance of norms and standards in the teacher education system (11).

2.10. CIET

Central Institute of Education Technology has a mandate to promote the utilization of technology including radio, TV, films, satellite communications and cyber media in education. The institute undertakes activities to widen educational opportunities, promote equity and improve quality of educational processes at school level (15).

2.11. NCPCR

The National Commission for Protection of Child Rights was set up in March 2007 under the Commission for Protection of Child Rights Act, 2005, an Act of Parliament. The Commission's mandate is to ensure that all laws, policies, programs, and administrative mechanisms are in consonance with the Child Rights perspective as enshrined in the Constitution of India and aligned with the UN Convention on the Rights of the Child (16). The NCPCR has a mandate to ensure that all laws, policies, programmes and administrative mechanisms protect the rights of the child and has asked schools to form special cells to solve problems of children and to examine incidences of mental and physical distress.

3. Schools and Student Enrolment

The Indian education system can be divided into three main categories: Elementary Education, Secondary Education and Higher Education based on the age of students enrolled.

Children in the age group of 6-14 are a part of the Elementary level of education ranging from Grades 1-8, and are entitled to free and compulsory education as mandated by the Right of Children to Free and Compulsory Education Act (2009) (RTE). The Elementary level is further divided into 2 sub-categories, Primary School (Grades 1-5) and Upper Primary School (6-8). Post Elementary level, a child undergoes Secondary Education for four years (Grades 9-12). Secondary education is further split into Secondary (Grades 9-10) and Higher Secondary (Grades 11-12) (*10*).

As per the Unified District Information System for Education (U-DISE) data, there were **1,518,160 schools in India** in 2013-14. Schools providing only Primary education are estimated at 858,916, forming 56.58% of the total number of schools. Only 30,692, or 2.02% schools offer education from Primary all the way till the Higher Secondary level, whereas schools providing only Higher Secondary education form 0.69% of all the schools in India (*11*).
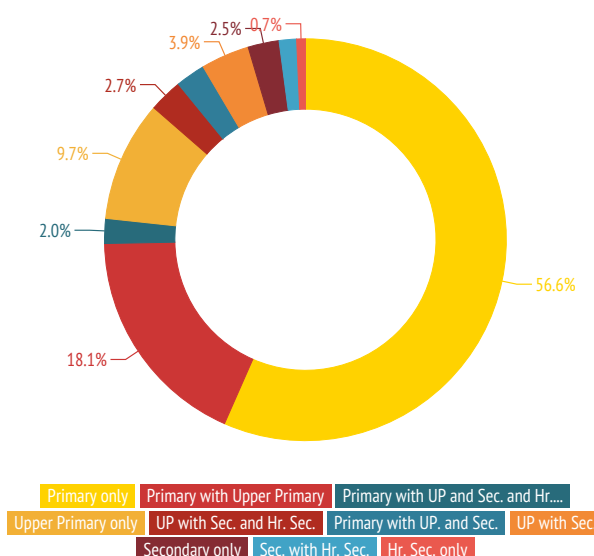

Figure 2. *Graphical representation of distribution of school types in India according to the U-DISE data*

Of the total number of schools in India, 1,291,276 or 87% schools are located in rural India as compared to 226,218 or 13% in Urban India (*11*). Only 51% schools in the country have electricity.
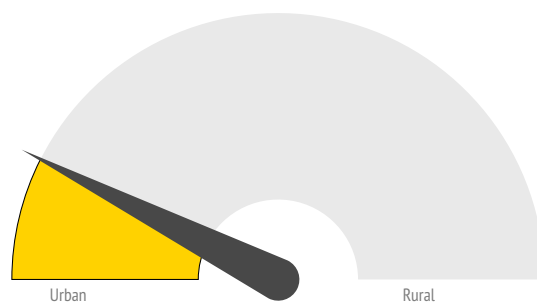
Figure 3. *Overall distribution of rural and urban schools in India according to the U-DISE data*

3.1. Types of Elementary Schools

Government Schools: Government schools are run by the Department of Education of a Union Territory (UT), state government or local authority. There are 1,093,969 government schools in India accounting for 75.51 % of the total schools offering elementary education.

Aided Schools: Aided schools receive grants-in-aid from the central government, administration of a UT and state government. Out of the total number of elementary schools in India 4.69 % are aided schools which means 67,933 schools were aided schools as per the DISE Flash Statistics, 2013-14.

Table 1. *Different types of schools offering elementary education and the total number of schools under each type (2013-14).*

Types	Total Number
Government Schools	1,093,969
Recognized Private Schools (Unaided)	319,990
Aided Schools	67,933
Unrecognized Schools (covered under DISE)*	21,351
Recognized Madrasaas	8,971
Unrecognized Madrasaas	4,431

*This is likely an underestimate as a large number of unrecognized schools do not report themselves

Unaided Schools: There were a total of 252,059 unaided schools in India (17.40 % of the total elementary schools) in 2013-14. An unaided school means a school run by a society, trust or company registered under Section 25 of the Companies Act, 1956 duly constituted and registered under the provisions of Central and State Acts not getting any regular grant-in-aid from any Government sources.

Unaided schools or private schools comprise of a large percentage of schools that charge less than the per-child expenditure of the state government in the public school system –

up to 95% in some states (*12*). The government mandates that all unaided schools be recognized by the state based on compliance to defined norms. However, a large number of private unaided schools do not meet these norms and yet comprise of up to 15-20% of schools in some regions. Delhi for example has nearly a third of its schools unrecognized (*13*).

Specified Schools: Specified schools are run by autonomous organisations under the government like Kendriya Vidyalaya Sangathan (KVS), Navodaya Vidyalaya Samiti (NVS), Sainik Schools Society etc. (*14, 15*).

3.2. Enrolment and Dropout Rates

India has witnessed an increase in enrolment over the last decade, but the dropout rates remain high. According to the Twelfth Five Year Plan (2012-17), the Gross Enrolment Ratio (GER) for elementary education was 115% in 2009-10 (*16*). Enrolment of students is the highest at the Primary level and falls rapidly with progression into higher grades. According to the U-DISE data, there were 132.4 million students enrolled at the Primary level (Grade 1-5) in the academic year 2013-14 and 22.3 million were enrolled at the Higher Secondary level (Grade 11-12). A total of 198 million students were enrolled in Elementary schools (grades 1-8) in 2013-14 (*11*).

Primary | Upper Primary | Secondary | Higher Secondary

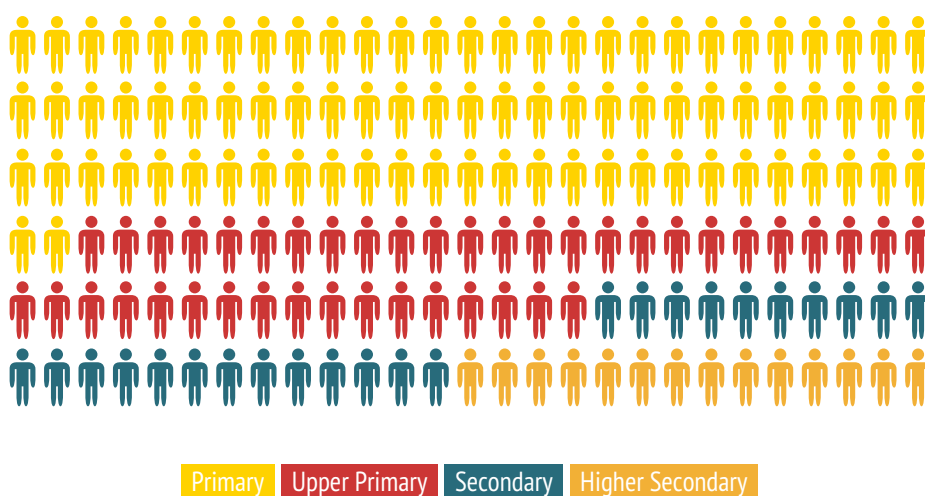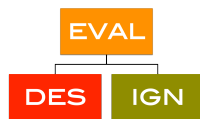*Figure 4.*   *Graphic showing decrease in student enrolment with increasing educational levels (DISE)*

As per the United Nation's Initiative on Education in India, an estimated 8.1 million children between 6-13 years are **out of school** in India (*17, 18*) and 41% of school-going children drop out before reaching Grade 8 (*19*). The transition rate from Primary to Upper Primary at national level was 87.1% in 2011-12 (*20*).

4. Sarva Shiksha Abhiyan

4.1. Overview

The Sarva Shiksha Abhiyan (SSA) is the Government of India's flagship programme that was launched in 2000-01 to achieve Universal Elementary Education (UEE) as envisioned by the United Nations' Millennium Development Goals, and thereafter mandated by the 86th amendment to the Constitution of India.

SSA is now the primary vehicle for implementing the provisions of the Right of children to Free and Compulsory Education Act (2009) (RTE). The origins of SSA go back to 1993-1994, when the District Primary Education Program (DPEP) was launched with the aim of achieving the objective of Universal Primary Education (UPE) (*21*). SSA has been implemented in partnership with State Governments to address the needs of 192 million children across 1.1 million habitations across the country. Its chief goals are:

- Universal access and enrolment,
- Universal retention up to the age of 14 years, and
- Substantial improvement in the quality of education to enable all children to achieve essential levels of learning (*20*).

4.2. SSA Implementation Bodies

The responsibility for implementation of SSA is vested at the national level in the Department of School Education and Literacy under the MHRD. At the national level, a General Council, an Executive Committee and a Project Approval Board (PAB) oversee the SSA activities, while the work relating to policy, appraisal of plans, release of funds to State Implementation Societies, overall review of the programme, technical support to States, research, evaluation, supervision, monitoring, etc. is undertaken by the DSEL (*22*).

At the State level, SSA is implemented by a State Implementation Society, which is registered under the Societies Registration Act 1860 and comprises of a General Council and an Executive Committee. At the district level, the District Project Office headed by the District Collector or Chief Executive Officer as the case may be, implements the programme. The Cluster Resource Centres and Block Resource Centres (CRCs and BRCs) are sub-district academic support institutions, which are expected to work in close collaboration with DIETs to render support to improve the quality of elementary education. At the village level, the critical unit is the Village Education Committee (VEC, now known as the School Management Committee or SMC), which ensures the cooperation and participation of the local community, and also oversees the implementation of SSA in the village.

4.3. Activities

The SSA initiative oversees a variety of interventions and activities related to schools (*9*). Some of the important ones include providing the mid-day meals (MDM) and stipends for students, the setting up of School Management Committees (SMCs), provision of

teaching-learning materials for classrooms as well as other activities that are highlighted in the accompanying graphic.
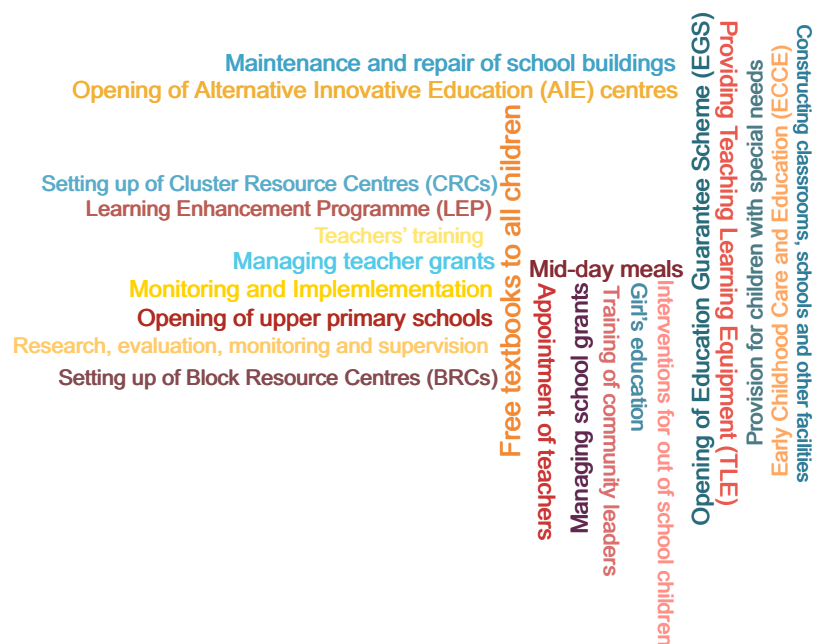

Figure 5.   *Graphic representation of activities under SSA*

4.4. Funding

Elementary education accounts for bulk of the education expenditure in India. In the year 2014-15, the allocation to elementary education was 431.26 Billion INR, accounting for 52% of the total budget of the MHRD. SSA is the largest scheme under elementary education, accounting for 66% of the GoI elementary education budget. In FY 2014-15, GoI allocated 282.58 Billion INR to SSA, up from 266.08 Billion INR in FY 2013-14.

SSA allocations are based on an Annual Work Plan and Budget (AWP&B), which is meant to be an aggregation of school, district, and state level plans. GoI's allocations for SSA are primarily funded by a 2% education cess (a tax-on-tax), called the Prarambhik Shiksha Kosh (PSK). In FY 2014-15, 67% of the SSA funds came from PSK.

Interestingly, SSA expenditures have failed to keep pace with the increase in allocations. In FY 2009-10, 77% of total allocations were spent. This dropped to 63% in FY 2012-13 (*23*) as can be seen in the following graph.

The SSA allocation caters to teacher salaries as well as student expenses. In FY 2009-10, teacher salaries accounted for 40% of the total SSA budget. This has increased to 61% in FY 2013-14.
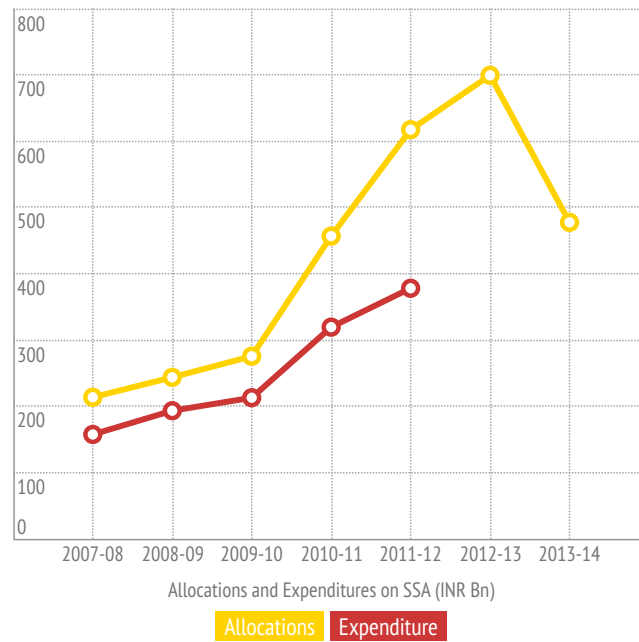
Figure 6. *Trends in SSA expenditure and allocations over time (in Billion INR)*

In FY 2009-10, the per-student SSA allocations stood at 2,110 INR. This increased nearly three-fold to 5,592 INR in FY 2012-13. As a result of the decrease in SSA budget allocation in FY 2013-14, per-student allocations (using enrolment numbers for 2012) dropped to 3,818 INR (*23*).

5.   Rashtriya Madhyamik Shiksha Abhiyan

Rashtriya Madhyamik Shiksha Abhiyan (RMSA) was launched in March 2009, with the goal of enhancing access to secondary education (students of age group 14-18 years) and to improve its quality.

The Net Enrolment Ratio (NER) at the secondary level remains low at 45.6 %. The Gross Enrolment Ratio (GER), on the other hand has improved significantly from 57.9 % in 2009-10 to 71.7 % in 2013-14. This suggests that 55 % of the children in the appropriate secondary education age group are either out of school, studying in elementary education, or are leaving school before completing the secondary level. With the high levels of NER in elementary education, it would be expected that this would translate into secondary education. Yet there remains a huge gap between NER and GER (*24-26*).

5.1. Activities

The main aim of RMSA is to improve the quality of secondary education in India and make it more accessible. It tries to do this by improving infrastructure and providing quality interventions. Some of these activities are listed in the table below.

Table 2.   *Table listing major activities under RMSA*

Important physical facilities provided under RMSA
Additional class rooms
Laboratories
Libraries
Art and crafts room
Toilet blocks
Drinking water provisions
Residential Hostels for Teachers in remote areas
Important quality interventions provided under RMSA
Appointment of additional teachers
Focus on Science, Math and English education
In-service training of teachers
Science laboratories
ICT enabled education
Curriculum reforms
Teaching learning reforms

The planning, monitoring and implementation of all activities under RMSA are handled by the RMSA Implementation Society headed by the RMSA State Project Director (SPD). The national progress of implementation is described in the following figure (*27*).
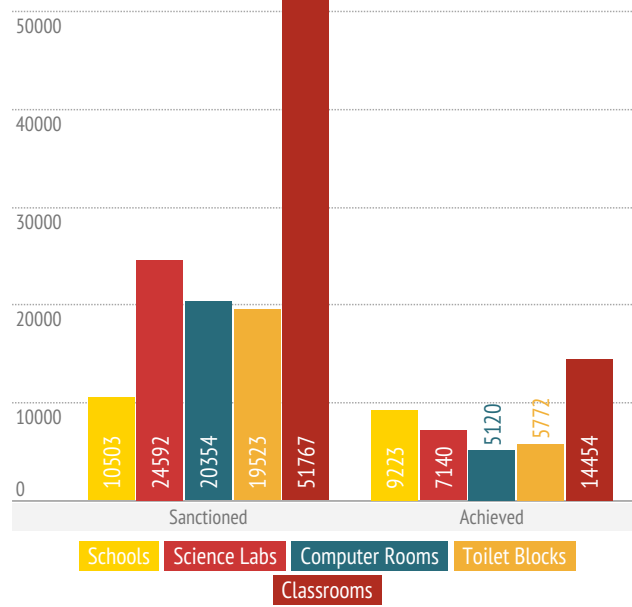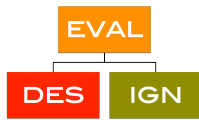
Figure 7. *Bar graph showing the difference between the sanctioned and constructed schools, computer and science labs, toilet blocks and classrooms allocated under RMSA.*

5.2. Funding
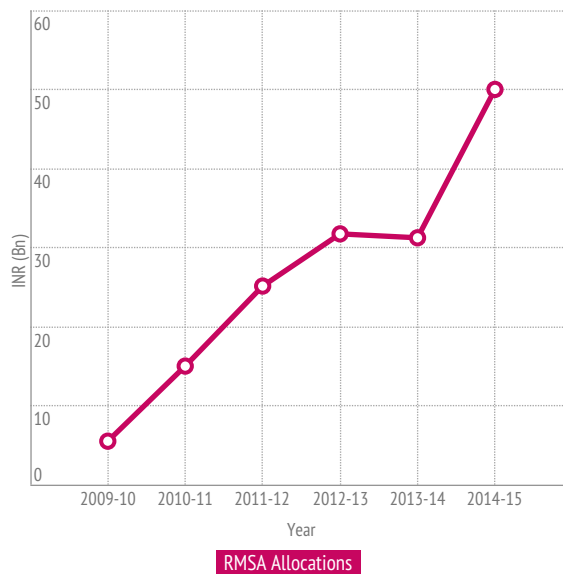
Figure 8. *Trends in RMSA budget allocations over time (in Billion INR).*

In FY 2013-14, four existing schemes were merged into RMSA. These are the ICT in school, Girls hostel scheme, Inclusive Education for Disabled at Secondary Stage (IEDSS), and Vocational Education (VE).

RMSA allocations are based on an Annual Work Plan and Budget (AWP&B) submitted to GoI by state governments. The final budget is based on negotiations with the GoI's MHRD. Once approved, funds are supposed to be shared between GoI and states in a 75:25 ratio. For the North East the ratio is 90:10. GoI's allocation for secondary education increased from 52.57 Billion INR in FY 2009-10 to 118.47 Billion INR in 2014-15. Correspondingly, allocations for RMSA increased by over 9-fold to 50 Billion INR in 2014-15 (*25*).

6. The Right of Children to Free and Compulsory Education Act (2009)

The Constitution (Eighty-sixth Amendment) Act (2002) inserted Article 21-A in the Constitution of India declaring education as a fundamental right. Subsequently, the Right of Children to Free and Compulsory Education (RTE) Act was passed in 2009 that declared that every child between the age of 6-14 would have a right to full time elementary education of satisfactory and equitable quality (*28*).

The Act was designed with three goals (*29*):

- All children should be in schools especially those from the marginalized sections of society.
- The input parameters into education should meet minimum standards set out by the Act.
- Students who undergo schooling should receive quality education-which is not just measured by marks, but also reflects good citizenship.

The RTE focuses on several dimensions of education and schooling. These include, but are not limited to: free provision of and compulsory elementary education, admission in age appropriate grades irrespective of previous education, the duties of governments, schools and the community in the education process, infrastructure and input norms, appointment of adequately trained teachers, prohibition of any kind of punishment, prevention of detention of students till grade 8 and a Continuous and Comprehensive Evaluation (CCE) process.

Some of the notable provisions of the act, elaborated in the following sections are:

- Reservation of seats in private schools for disadvantaged students
- Norms and standards for schools
- Constitution of a School Management Committee (SMC)
- Continuous and Comprehensive Evaluation (CCE)

6.1. Reservation in Private Schools

Section 12(1)(c) of the RTE is a provision mandating that private schools reserve up to 25% of their seats for students from disadvantaged backgrounds, with a reimbursement of fees by the government (subject to a maximum of the per-child spending in the public schools). This provision in the RTE Act could lead to India having the world's largest number of children attending private schools with public funding, and has the potential to impact at least 10 million children across the country in the next few years (*11, 30*).

The criteria for admission to private schools under this provision of the Act, particularly income cut offs, vary across states. However, the awareness of this clause is quite poor. In surveys conducted in Delhi for example, only 0.4% of 5500 families interviewed were found to be availing the scholarship under section 12(1)(c) (*31*). Efforts to increase awareness for this provision under the RTE are currently underway.

6.2. Norms and Standards for Schools

Sections 18 and 19 of the RTE Act stipulate that no school can be established without obtaining a certificate of recognition from the designated authority and define the standards that must be met by every established school (*28*). The major criteria governed under this clause are listed below.

Table 3. *A list of criteria with which schools need to comply with in order to be recognized under the RTE.*

Teacher Characteristics
Minimum teacher qualifications and salaries

School Organization
The minimum number of working days in an academic year and instructional hours in a week
1. Two hundred working days for first grade to fifth grade
2. Two hundred and twenty working days for sixth grade to eighth grade
3. Eight hundred instructional hours for first grade to fifth grade
4. One thousand instructional hours for sixth grade to eighth grade
5. Forty five teaching including preparation hours
The pupil teacher ratio
1. Up to sixty students – 2 teachers
2. Between sixty-one to ninety – 3 teachers
3. Between ninety-one to one hundred and twenty – 4 teachers
4. Between one hundred and twenty-one to two hundred – 5 teachers
5. Above one hundred and fifty children – 5 teachers plus one Head Teacher
6. Above two hundred children - PTR (excluding Head Teacher) shall not exceed forty

School Characteristics
School Infrastructure
1. At least one class-room for every teacher and an office cum-store-cum-Head teacher's room
2. Arrangements for securing the school building by boundary wall or fencing
3. Separate toilets for boys and girls
4. Safe and adequate drinking water facility to all children
5. Playground and the provision of games and sport material to students
6. Barrier free access
7. Kitchen where mid-day meal is cooked in the school
8. Library

An estimated 21,351 unrecognized private schools countrywide are likely to be impacted as a result of this provision as they do not meet the input norms (*11*). This number is likey a gross underestimate, as most unrecognized schools do not self-report as required under the DISE. Interestingly, these norms focus on inputs that have not necessarily provided evidence for improving learning outcomes. The following table compares

research studies that have shown improvement in learning outcomes as a result of some of the inputs proposed by the norms under the RTE, with studies that show contrary results.

Table 4. *Summary of research studies for and against the validity of school input norms.*

Input	Studies For	Studies Against
Minimum teacher qualifications and salaries	Chetty et al., 2011 (32)	Banerjeet et al., 2007 (33)
Minimum number of working days in an academic year and instructional hours in a week	Abadzi , 2009 (34) World Bank, 1997 (35)	
Pupil Teacher Ratio	Dreze, 2001 (36)	Hanushek, 2003 (37)
School infrastructure	Glewwe et al., 2013 (38)	Abogan, 2013 (39) Muralidharan, 2012 (40)
Kitchen where mid-day meal is cooked in the school	Afridi, 2012 (41)	Vermeersch (2005) (42)
Presence of a Library in school		Kremer, 2009 (43) Borkum, 2012 (44)

6.3. School Management Committee

The RTE envisions an SMC as the basic unit of a decentralized model of governance with active involvement of parents in the school's functioning. Section 21 of the RTE mandates the constitution of an SMC in every government school. An SMC is comprised of parents, teachers, school leaders and community members (*28, 45*).

The RTE Act stipulates that SMCs should:

▪ Monitor the working of school (mid-day meal provision, toilet facilities, teacher attendance, etc.).
▪ Monitor the utilization of grants received from the appropriate government, local authority or any other source.
▪ Prepare and recommend the annual and three-year School Development Plan (SDP), which addresses infrastructure, academic achievement, etc.

The size of the SMC is determined on the basis of the students enrolled in a given school, and must comprise of 75% parents or guardians, the school head master as well as teachers.From 2012-13 to 2013-14 the number government and government-aided schools who have formed SMCs have increased from 88% to 91.08% according to self-reported U-DISE data (*14*). However, headmasters, teachers and parents are not fully aware of the existence of SMCs, and greater awareness is needed to inform them of their rights and duties as members of the committee.

6.4. Continuous and Comprehensive Evaluation

Section 29 of the RTE provides for the implementation of Continuous and Comprehensive Evaluation (CCE) as a holistic assessment system aimed at developing all round skills of students and making education stress-free. The system is designed to assess students from various perspectives, intending eventually to eliminate rote learning and to teach a student at his or her learning level (*46*). As a part of this new system, student's marks are replaced by grades, which are evaluated through a series of curricular and extra-curricular evaluations along with academic progress tracking. Grades are awarded to students based on work experience skills, dexterity, innovation, steadiness, teamwork, public speaking abilities, behaviour, etc. A recommended assessment schedule is outlined in the table below (*47*).

Table 5.   *Assessment mechanism under CCE.*

Type of Assessment	Weightage	Month
Term 1		
Formative Assessment 1	10%	April-May
Formative Assessment 2	10%	July-August
Summative Assessment 1	30%	September
Term 2		
Formative Assessment 3	10%	October-November
Formative Assessment 4	10%	January-February
Summative Assessment 2	30%	March
Total FA = 40%, SA = 60%		

CCE signifies a paradigm shift in the thinking of the role of assessments in the Indian context. It covers both, scholastic as well as non-scholastic aspects of a child's development, and includes recording the formative and summative progress of all students on a regular basis as described in the table. However, several challenges are associated with the effective implementation of CCE. For example, in-classroom assessments used as a part of CCE are not standards-based or standardized, report cards do not provide feedback fast enough to facilitate corrective interventions and the mechanism does not allow space for involved parent-teacher-student engagement. Moreover, this system of evaluation has reportedly increased the burden on teachers because of an elaborate and more frequent reporting mechanism and provides little opportunity to bridge the knowledge gaps if and when they are identified (*48*).

7. Assessments and Outcomes

A wide variety of assessment activities are undertaken in the education system in India. The major assessments systems are summarized in this section (*49, 50*).

7.1. National Achievement Surveys

NCERT is the official authority for monitoring quality improvements in education. This is executed by collecting data via the National learning Achievement Surveys (NAS). The NAS is a competency-based set of tests that are administered to a large sample size and cover grades 3, 5, and 8, in urban and rural areas across India. Grades 3, 5 and 8 have been covered in a cyclical manner over the last decade. In 2012-13, the NAS covered 34 states, 298 districts, 7046 schools and 104,374 students in Grade 3. The 2012-13 results for NAS 2012-13 showed that 86% of the Grade 3 students could recognize words and 59% could do division (*51*).
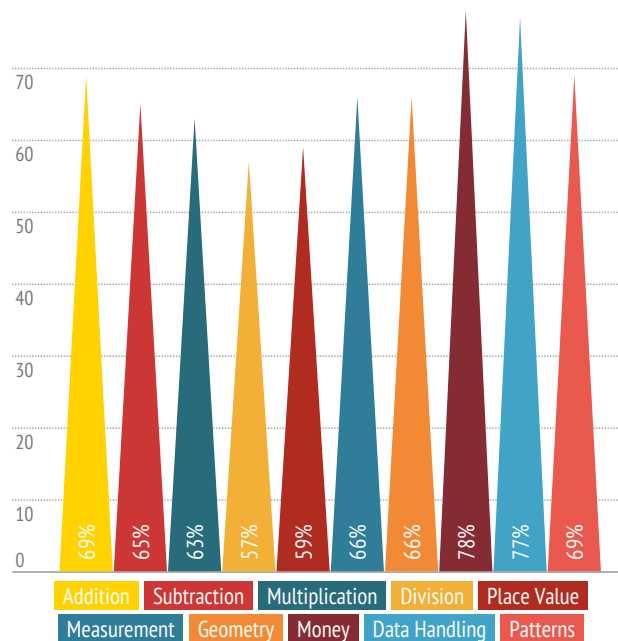

Figure 9.   *Math scores for Grade 3 students segregated by competencies (NAS 2012-13).*

65 % **86 %** **59 %**

Listening | Word Recognition | Reading Comprehension
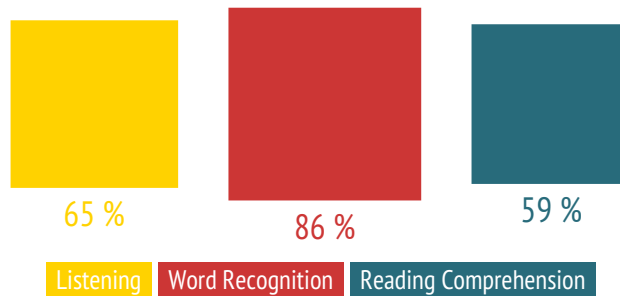
Figure 10. *Language scores for Grade 3 students under different competencies (NAS 2012-13)*

7.2. Annual Status of Education Report

The Annual Status of Education Report (ASER) tests basic competencies across children of 6-14 years of age, and has been influential in policy formulation. ASER is facilitated by Pratham, a non-governmental organization and has been carried out every year since 2005, measuring reading and arithmetic levels of children in the 6-14 year age group in rural areas. In 2012, the survey assessed 413,207 children in the 6-14 age group from 331,881 households in 567 districts across India (*52*).

ASER Rural Sample Survey

Do a simple Division | Read Simple Paragraph

Figure 11. *Line graph showing the percentage of grade 5 students able to read a simple paragraph or do a simple division (ASER).*

According to ASER 2013, only 26% of grade 5 students could do a simple division and 21% could read a simple paragraph. This number dropped to 7% for division and 19% for reading a simple paragraph for grade 3 students.
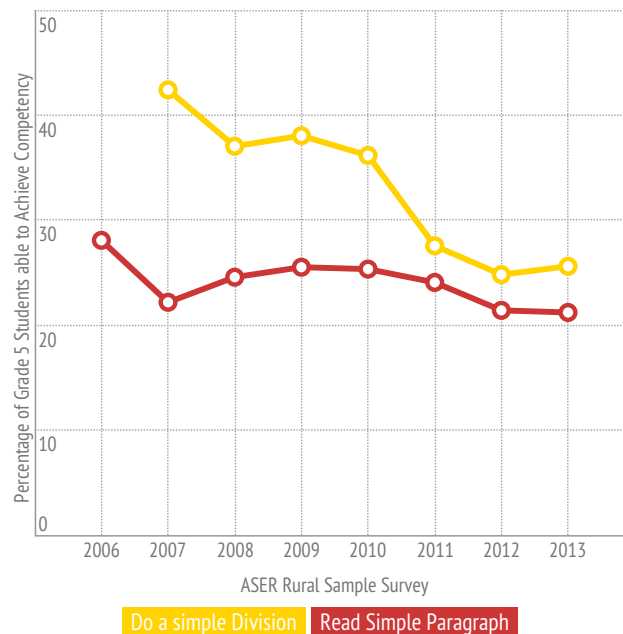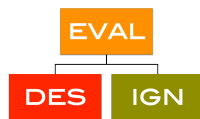
7.3. Programme for International Student Assessment

The Programme for International Student Assessment (PISA) is an influential international study, which aims to evaluate education systems by testing the skills and knowledge of 15-year-old students. In 2011, the states of Tamil Nadu and Himachal Pradesh participated in PISA+, a pilot round that followed the main PISA study cycle. The sample for Tamil Nadu and Himachal Pradesh was selected from all eligible educational institutions of the two states where 15-year-old students were studying. With two of these Indian states participating in the PISA in 2009, India ranked 73rd out of 74 nations participating (53).

7.4. CBSE Problem Solving Assessment

The Problem Solving Assessment (PSA) was initiated by CBSE for students of grade 9 and grade 11. The test involves questions to test a student's problem-solving ability. The PSA is conducted by the CBSE and the evaluation is also done by the board. The assessment is in a multiple choice question format and the results are included as a part of the students' CCE marks (54).
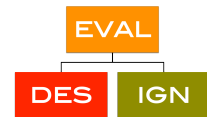
7.5. School Boards

In India, board examinations take place at the end of the 10th grade and at the end of the 12th grade. The marks obtained in these exams play a vital role for taking admission into a university, getting into professional courses or finding employment. Following is a summary of some of the important boards in India.

7.5.1. Central Board of Secondary Education

The CBSE has 15,799 schools including 197 schools in 23 countries as of September, 2014. It was set up to achieve certain interlinked objectives with respect to board examinations: (1) to prescribe conditions of examinations and conduct public examinations at the end of Grade 10th and 12th; (2) to grant qualifying certificated to successful candidates of the affiliated schools; (3) to prescribe and update course of instructions of examinations and; (4) to affiliate institutions for the purpose of examination and raise the academic standards of the country (55). In order to be declared as having passed the examination, a candidate needs to obtain at least 33% marks in all subjects.

7.5.2. Council for the Indian School Certificate Exams

The CISCE was listed in the Delhi School Education Act 1973, as a body conducting "public" examinations in 1973. It conducts three examinations, namely, the Indian Certificate of Secondary Education (ICSE – Grade 10), the Indian School Certificate (ISC – Grade 12) and the Certificate in Vocational Education (CVE - Year 12) (56).

7.5.3. State Boards

Every state has its own education board which looks after the academic affairs of the schools under its purview. Each state in India has its own State Board of Education that conducts certificate examinations for Grade 10 and Grade 12.

7.5.4. International Baccalaureate

The IB was founded in 1968 and is currently working with 3,964 schools in 147 countries to develop and offer four challenging programmes to over 1,239,000 students aged 3 to 19 years. In India, there are 113 IB World schools out of which 100 offer the Diploma Program catering to ages 16-19 (*57*).

7.5.5. National Institute of Open Schooling

The National Institute of Open Schooling (NIOS), formerly known as National Open School (NOS) was established in 1989 as an autonomous organisation in pursuance of National Policy on Education 1986 by the MHRD. The Association of Indian Universities issued equivalence of Senior Secondary Certificate Examination of NIOS. It caters to the needs of students who do not attend regular school (*58*).
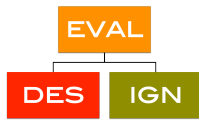
8. Teacher Training and Qualifications

Education is a part of the concurrent list under the Constitution of India. Hence, the broad policy and legal framework for teachers is provided by the Central Government whereas the implementation of various programmes and schemes is undertaken by state governments.

8.1. Organisational Structure of Teacher Education in India

The MHRD and Central Advisory Board of Education (CABE) are the two main bodies regulating teacher recruitment and training under the Government of India. At the next level, the NCTE, NCERT, the Centrally Sponsored Schemes for re-structuring and re-organization of teacher education and University Grants Commission (UGC) are the bodies responsible for educational research and teacher training in India (*59*).
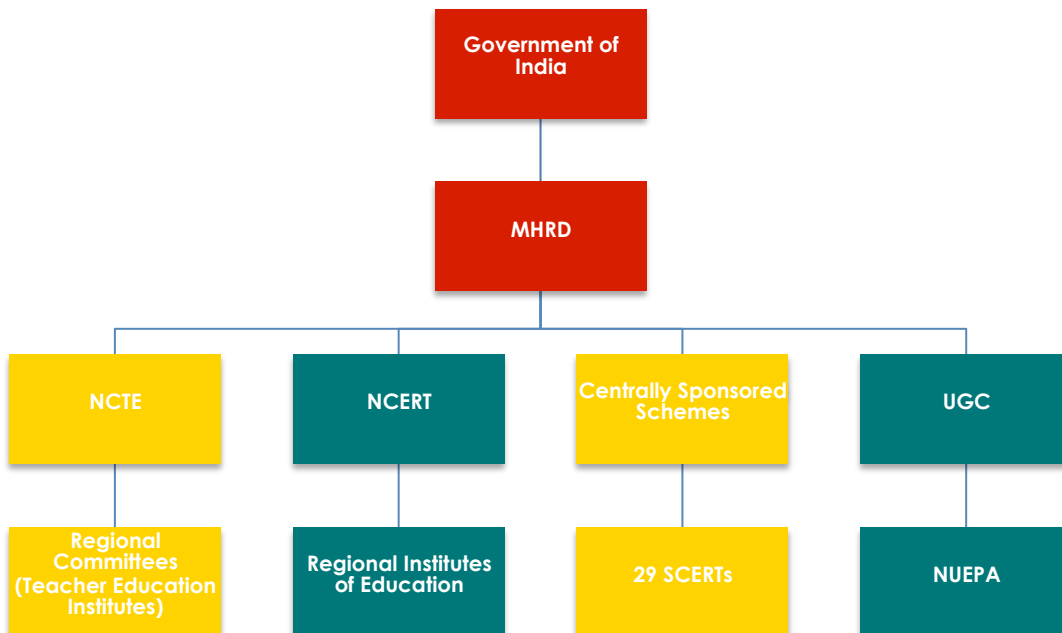
Figure 12. *Heirarchy of the bodies responsible for teacher education and governance system in India*

Teacher training in India is conducted at two levels:

- Pre-Service Training that prepares teachers for the school system
- In-Service Training that improves capacity of existing school teachers

Pre-service training is the responsibility of the NCTE, the main objective of which is to achieve planned and coordinated development of the teacher education system throughout the country and the regulation and maintenance of norms and standards for pre-service training. The NCTE also grants recognition to institutions (government,

government-aided and self-financing) interested in undertaking pre-service teacher training and monitors their standards and quality (*60*).

For in-service training, India has a large network of government-owned teacher training institutions (TTIs). At the National Level, the NCERT, along with its six Regional Institutes of Education (RIEs) prepares a host of modules for various teacher-training courses and also undertakes specific programmes for training of teachers and teacher educators. Institutional support is also provided by the NUEPA.

At the state level, the SCERTs prepare modules for teacher training and conduct specialised courses for teacher educators and school teachers. At the district level, in-service training is provided by the DIETs. The Block Resource Centres (BRCs) and Cluster Resource Centres (CRCs) form the lowest rung of institutions in the vertical hierarchy for providing in-service training to teachers. The Colleges of Teacher Education (CTEs) and Institutes for Advanced Learning in Education (IASEs) provide in-service training specifically to secondary and senior secondary school teachers and teacher educators.
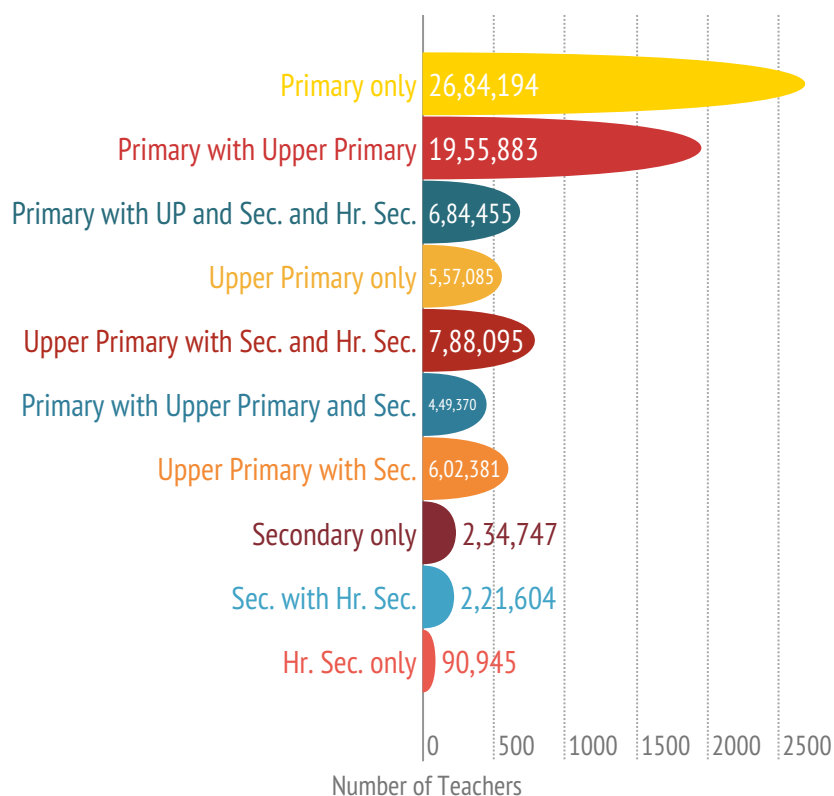

Figure 13.   *Distribution of teachers by school type*

8.2.   Number of Teachers and Qualifications

As of 2013-14, there were 8,269,199 teachers in India. Of these, 93.72% teachers are regular or full time, as compared to 6.28% teachers who are contractual or para teachers. Para teachers are usually less qualified than regular teachers and are hired on a

contractual basis to fill the teacher deficit faces by most states. The majority of para-teachers in 2010, were recruited by the states of Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, MP, Rajasthan and Uttar Pradesh, which together hired 68% of all para-teachers across the country (*61*)(*62*). At present, government teacher salaries are paid as per the norms of the 6th pay commission. The salaries of private school teachers do not meet these norms and there is an on-going debate as to whether the government can dictate private sector salaries.

5,04,000   5,19,305

77,49,893

Deficit   Contractual Teachers   Regular Teachers
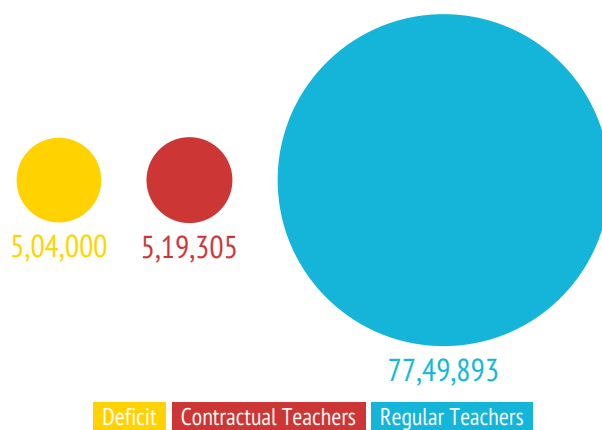
Figure 14.   *Graphic representation of full time vs. contract teachers*

8.3. Teacher Qualifications

In accordance with the provisions of sub-section (1) of Section 23 of the RTE Act, the NCTE laid down the minimum qualifications for a person to be eligible for appointment as a teacher for Grades 1-8. This included the passing of the Teacher Eligibility Test (TET) or the Central Teacher Eligibility Test (CTET), which is conducted by the appropriate government in accordance with the guidelines framed by the NCTE (*63*). The most recent CTET Results were declared in October 2014. The number of teachers who passed the CTET in the exam meant for teachers opting to teach Grade 1-5 was 9% in Rajasthan, 6.8% in Uttar Pradesh, 4.56 % in Bihar and 3.46% in Tamil Nadu (*64*). The percentage of teachers with graduate academic qualifications and above account for 68.93% of the teaching taskforce (*11*).

9. Funding and Expenditures

In Financial Year (FY) 2012-13, India spent 4.29% of its total GDP on education. Funding for education is received from both, the central government as well as state governments in terms of vertical allocation, and from the Education Ministry or MHRD as well as other ministries in terms of horizontal allocation. The percentage share of funding by the central government departments is 27.09% as compared to 72.91% by the state government and their departments.

The Analysis of Budgeted Expenditure on Education is an annually released summary of education allocations and expenditures on education in India. The following section draws largely from this document to highlight funding in the education sector (*65*).

Table 6.   Total Indian expenditure on Education and Training by all government departments at the centre and state level (2012-13 Budget Estimates, Revenue Account)

Billion INR	Centre	State/UT	Total
Expenditure	1092.23	2940.13	4032.36
Percentage share	27.09%	72.91%	100%

In addition to the MHRD, a number of other ministries also allocate funds for education. The MHRD contributes the greatest proportion of funds for education as compared to any other ministry as far as central government funding is concerned. The top spending ministries and their corresponding allocations for 2012-13 are listed in the table below.

Table 7.   Total contribution to rducation (excluding Training) from top spending ministries at the centre (2012-13 Budget Estimates, Revenue Account)

Ministry/Department	Total Billion INR
Ministry of HRD	740.4
Ministry of Finance	79.52
Ministry of Agriculture	57.71
Department of Space	31.87
Department of Atomic Energy	29.59
Ministry of Science and Technology	27.86
Ministry of Health and Family Welfare	23.39
Ministry of Culture	12.68
Ministry of Earth Sciences	10.76
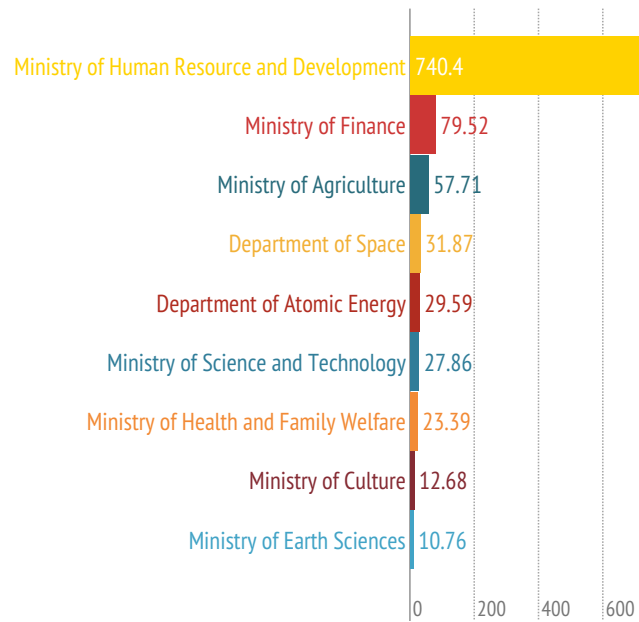
Figure 15. *Top spending ministries in the education sector*

Allocations by the MHRD towards education are further divided into sectors, with the maximum allocation towards elementary education, followed by university education and then secondary education. The details of the budgeted expenditure on education by the MHRD in 2012-13 are given in the next table.

Table 8. *Budgeted expenditure on education, by the education department of central government (MHRD) (2012-13 Budget Estimates, Revenue Account)*

Sector	Total Billion INR
Elementary Education	382.98
Secondary Education	97.73
Adult Education	7.09
Language Development	2.90
University/DL/Scholarship	156.28
Technical Education	91.52
General Education	1.89
Total	740.40

Pie chart center label: 2012-13 INR Billion

Values shown: 1.89, 91.52, 156.28, 7.09, 97.73, 382.98

Legend: Elementary Education | Secondary Education | Adult Education | Language Development | University/DL/Scholarship | Technical Education | General Education
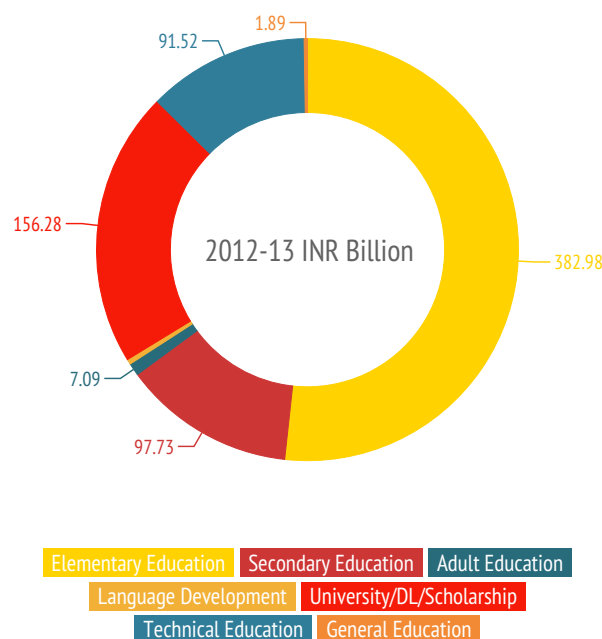
Table 9. *Graphic representation of sector-wise budgeted expenditure on education, by the education department of central government (MHRD) (2012-13 Budget Estimates, Revenue Account)*

9.1. Elementary Education Expenditures

Elementary education forms the largest proportion of the expenditure on education. In 2012-13, 1631.04 Billion INR was spent by central and state departments of education on elementary education, which was topped up to 1692.50 Billion INR by other departments at the centre and state level. The details of this budgeted allocation are given in the table below.

In 2014-15, the budgeted estimate of MHRD allocations was 431.26 Billion INR towards elementary education and 118.47 Billion INR for secondary education. The SSA and RMSA allocations were 282.58 Billion INR and 50 Billion INR respectively in the same year[1] (*23, 25*).

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[1] Further details of the 2014-15 allocations were not available at the time of publishing of this report.

Table 10.   *Total Plan and Non-plan budgeted expenditure on elementary education by education departments (2012-13 Budget Estimates, Revenue Account)*

	Centre Billion INR	State/UT Billion INR	Total Billion INR
Expenditure by Education Department	382.98	1248.06	1631.04
Percentage share	23.48%	76.52%	100%
Expenditure by All Departments	410.22	1282.28	1692.50
Percentage share	24.23%	75.76%	100%

Details of other heads of expenditure under elementary education are listed in the table below.

Table 11.   *Budgeted expenditure for 2012-13 on elementary education by education department of central government (Revenue Account)*

Elementary Education	Total Billion INR
Sarva Shiksha Abhiyan	255.55
Mid Day Meal	119.37
Teachers Training (Strengthening of Teachers Training Institutions)	5.00
Scheme for providing Quality Education in Madrassas	1.75
Mahila Samakhya (EAP)	0.60
Infrastructure Development In Minority Institutions (IDMI)	0.50
National Bal Bhawan Society	0.21
National Investment Fund	0
TOTAL (Elementary Education)	382.98

Within the elementary education sector, allocations are made by the MHRD for a number of schemes, the largest of which are the Sarva Shiksha Abhiyaan and the Mid Day Meal Scheme. As a part of the overall budgeted expenditure on education by the MHRD therefore, SSA held a 34.51% share in 2012-13.

10. Technology in Schools

Information and Communication Technology (ICT) is being used in classrooms to improve learning outcomes worldwide. In 1970, the MHRD took up a scheme of Educational Technology (ET), under which, an ET unit in the MHRD, one Centre for Educational Technology (CET) under the aegis of the NCERT, and ET cells in six State Institutions of Education Technologies (SIETs) were set up in 1974. The launch of the Indian National Satellite (INSAT) in 1980, then led the MHRD to take over the production of educational television programs which were transmitted via the national channel Doordarshan.

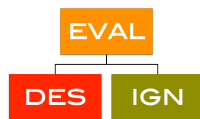## 10.1. Computer Literacy and Studies (CLASS)

The Computer Literacy and Studies (CLASS) project was launched in 1984 as a joint initiative of the MHRD, the Department of Electronics, and the NCERT. It made use of microcomputers provided by the British Broadcasting Corporation (BBC) and covered 42 resource centers and 2,582 schools. Subsequently, the government initiated the CLASS 2000 programme with the aim of providing computer literacy in 10,000 schools, computer-assisted learning in 1,000 schools, and computer-based learning in 100 schools. These 100 schools were called smart schools, and were designed to be agents of change seeking to promote the extensive use of computers in the teaching-learning process.

The evaluation of both projects revealed the need for greater interaction between resource centers and project schools, the need to reduce the time gap between the training of teachers, the installation of systems, and the initiation of activities in schools and the imparting of adequate hands-on experience to teachers and students (*66*).

10.2. Status of ICT

ICT in schools is now a component of the RMSA. It was a scheme launched in 2004 and revised in 2010 to provide opportunities to secondary stage students to mainly build their capacity on ICT skills and make them learn through computer aided learning process. The Scheme is a catalyst to bridge the digital divide amongst students of various socio economic and other geographical barriers. It provides support to States/UTs to establish computer labs on sustainable basis. The scheme currently covers both government and government aided secondary and higher secondary schools. Financial assistance is provided for procurement of computers and peripherals, educational software, training of teachers, development of e-contents, Internet connectivity and set up of smart schools.

Under this scheme, 87033 government and government aided secondary and higher secondary schools have been approved for coverage. The project cost is shared between centre and states in ratio of 75:25 except for the North East region states, where it is 90:10. The government announced a National Award for innovative use of ICT to motivate the teachers in government and government-aided institutions (*67*).

10.3. State Government Schemes with regards to Technology

In 2011-12, the Tamil Nadu government sanctioned a sum of 9.12 Billion INR for free distribution of 912,000 laptop computers to students studying in Government and Government aided school and colleges (*68*).

A similar scheme was launched in 2013 by Akhilesh Yadav, Chief Minister of Uttar Pradesh as a part of which he decided to give free laptops to students who had passed Grade 12th from one or two districts of Uttar Pradesh in order to motivate them to study further. The implementation of such schemes and their impact remains unknown (*69*).

10.4. Private Providers

There are numerous organization in the private sector that provide services and tools for education. The following table gives a summary of selected organizations classified by the services they provide (*70-72*).

Table 12.   *List of private providers of ICT*

Digital Content	School Administration	Assessments	Teacher Support
Educomp	Fedena	Classalyze	Pearsons
Tata Class Edge	NextERP	Edulabs	Eduora
Extramarks	Tally	Grey Matters	GuruG
Pearsons	Report Bee	Pearson Group	CourseHub
Merit Nation		Educational Initiatives	Learning Outcomes
Edurite			
Mango Reader			
Zaya Labs			

11. Research and Experiments in Education

The Abdul Latif Jameel Poverty Action Lab of the Massachusetts Institute of Technology has run a number of experiments using the Randomized Controlled Trials (RCT) as a methodology of choice. RCTs enable the attribution of cause to the effects observed as a result of various interventions in Education.

The following section draws excerpts directly from the J-PAL website (http://www.povertyactionlab.org/) to demonstrate the wide range of research that has addressed a number of key questions in education.

11.1. Education Incentives for Parents and Children in India (73)

Location: Gurgaon, Haryana, India

Sample: 1052 students in Grade 1-3

Details of the Intervention: The intervention tested whether the identity of the recipient of education incentives—either the parent or child—can influence of the effectiveness of incentives on educational outcomes. The results revealed no significant differences in after-school class attendance or literacy achievement between toy or money reward treatments. But the effectiveness of different types of incentives did vary by initial learning levels.

11.2. Diagnostic Feedback for Teachers on Student Learning (74)

Location: Andhra Pradesh, India

Sample: 400 schools

Details of Intervention: The program tested the impact of written diagnostic feedback to teachers along with suggestions on ways to improve learning levels of students in low achievement areas on student learning outcomes. Teachers in treatment schools showed a 0.11 standard deviation higher level of activity, but the impact on student learning outcomes was not significant. The feedback reports were used effectively by teachers when combined with performance-linked bonuses for teachers, which provided an incentive for improving student learning.

11.3. Improving Learning Outcomes by Teaching at the Right Level

Location: Haryana, India

Sample: 400 Primary schools and 100 Upper Primary Schools in Mahendargarh and Kurukshetra districts.

Details of the Intervention: This experiment attempted to understand the impact of CCE and/or the Learning Enhancement Program (LEP) based Teaching at the Right Level (TaRL) methodology where children are grouped according to their initial reading levels,

irrespective of grade or age. Students in CCE schools (Primary and Upper Primary) did no better than students in the comparison group on either oral or written tests for Hindi or Math. Relative to the comparison group, students in LEP schools scored 0.15 standard deviations higher on the Hindi reading test and 0.135 standard deviations higher on the Hindi written test. Students in CCE only schools did not perform significantly differently as compared to students in control schools.

11.4. Extra Contract Teachers in Schools (75)

Location: Andhra Pradesh, India

Sample: 200 rural government schools

Details of the intervention: This experiment addressed three questions: (1) the impact of a contract teachers on student learning, (2) which students benefited from an additional teacher and; (3) how different was the behavior of contract teachers compared with that of regular teachers?

Results: Students in schools with an extra contract teacher performed significantly better than those in comparison schools by 0.16 and 0.15 standard deviations in Math and language test scores respectively. Contract teachers were significantly less likely to be absent than regular teachers (18% versus 27%) and more likely to be engaging in active teaching (48% versus 42%) when they were present.

11.5. Improved Methods for Teaching Reading (76)

Location: Mumbai, Maharashtra, India

Sample: 2,679 students (experiment 1), 4,757 students (experiment 2), 3,858 (experiment 3)

Details of Intervention: The program's aimed to develop reading and comprehension skills among children aged four to five in preparation for primary school matriculation. Three separate experiments were conducted over three years designed to evaluate the effects of the program on three different student populations in three different types of institutions. Pratham's early literacy skills development curriculum improved the reading skills of pre-school and 1st Grade children. In the three experiments used for the evaluation, the program proves robust to several delivery mechanisms, delivering gains of 0.12 to 0.70 standard deviations over the respective control groups.

11.6. School Libraries in Primary Schools (77)

Location: Bangalore, Karnataka, India

Sample: 20,858 students in 386 schools

Details of Intervention: This evaluation sought to evaluate the impact of the Akshara Foundation library programs on primary school students' academic achievement. The intervention had little effect on students' language skills.

11.7. Different Instruction Methods for English Language Education (78)

Location: Maharashtra, India

**Sample:** 5,317 students in Thane; 9,745 students in Mangaon, Raigad

Details of Intervention: This study evaluates the effectiveness of a unique English language training called PicTalk and a set of specially tailored flashcards and teaching manuals designed to promote oral communication with the help of a teacher. Both methods aim to teach equivalent curricula to its students, yet through the use of differential teaching methods. On average, the machines and the student activities are similarly effective at improving students' English scores. The externally implemented program increases students' scores by 0.26 standard deviations while students subject to the teacher implemented interventions improve their test scores by 0.36 standard deviations. The lower performing students benefit more from interventions that include teacher implemented activities, while higher performing students gain most from the relatively self-paced machine-only intervention. These results suggest that significant gains could be achieved by targeting different approaches to individual types of children.

11.8. Informational Campaigns to Raise Awareness and Local Participation in Primary Education (79)

Location: Jaunpur, Uttar Pradesh, India

Sample: Households and government schools in 280 villages

Details of Intervention: A series of interventions sought to undertsand whether more information and encouragement to use the change-making channels would cause Village Education Committees (VECs) and community members to demand and receive better educational services. There was an increase of 7.8 percentage points in VEC members who knew they could access public funds, and a 13 percentage point increase of members who had been properly trained. Parents were also 2.9 percentage points more likely to know that a VEC existed in their community. However, there was little difference between the student performance in treatment and comparison villages. Where VECs were empowered to take direct action such as the hiring of teachers, student outcomes improved.
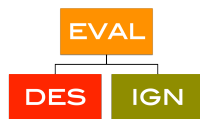
11.9. Balsakhi Remedial Tutoring (33)

Location: Vadodra and Mumbai, India

Sample: 122 primary schools in Vadodara, 77 primary schools in Mumbai

Details of Intervention: A non-formally qualified tutor (*Balsakhi*), was recruited from the local community and given a brief two-week training to work with children in Grades 2, 3 and 4 who were identified as falling behind their peers. The tutors were paid a fraction of the cost of civil-service teachers (USD 10-15 per month). The program had substantial positive impacts on children's academic achievement. The program significantly improved overall test scores; by 0.14 standard deviations in the first year and 0.28 standard deviations in the second year, with the largest gains in Math. The weakest students, who were the primary target of the program, gained the most. It is estimated that the entire effect of the program was due to a very large (0.6 standard deviations) improvement in average test scores among the children who were sent for remedial education.

11.10.   Teacher Performance Pay (80, 81)

Location: Andhra Pradesh, India

Sample: 500 schools

Details of Intervention: Two types of teacher performance pay (group bonuses based on school performance, and individual bonuses based on teacher performance) were studied. In a parallel initiative, two other sets of schools were provided with an extra contract teacher, and with a cash grants for school materials respectively.School-level group incentives and teacher-level individual incentives performed equally well in the first year of the program, but the individual incentive schools significantly outperformed the group incentive schools in the second year. At the end of two years, the average treatment effect was a 0.27 standard deviation increase in test scores in the individual incentive schools compared to 0.16 standard deviations in the group incentive schools.

11.11.   Effect of Technology on Student Achievement (82)

Location: Rural Patdi and Dhrangadra and semi-rural Ahmedabad and Halol

Sample: 2,156 students from 60 schools

Details of Intervention: This study measured the impact of a Computer Assisted Learning (CAL) program implemented in two different ways, thereby illustrating how a pedagogically similar program can produce drastically different results when context and implementation methods are slightly altered.

In the first phase, second and third graders participated in a *pull-out* CAL program for one year. In the second phase of the study, students participated in a *supplemental* after school CAL program for one year. Students who participated in the supplemental CAL program had math scores 0.28 standard deviations higher, on average, than students in

the control group. Students who participated in the pull-out CAL program, however, had 0.57 standard deviations *lower* math scores than students in the control group. Thus the method and context of implementation of the CAL program may play a significant role in determining its impact.

11.12.   Computer-Assisted Learning (33)

Location: Vadodara, Gujarat, India

Sample: Grade 4 classes in 111 primary schools

Details of Intervention: Taking advantage of a government program that placed four computers each in 80% of primary schools in Vadodara. This study asked if CAL improves students' skill levels, if the effects would persist over time, and how cost-effective the program would be compared to alternatives. Students who participated in the CAL program had higher math scores on average compared to the comparison group. In the first year math scores increased by approximately 0.35 standard deviations, and in the second year, by 0.47 standard deviations, a substantial achievement when compared to other education interventions. There was no measurable impact on language scores, suggesting that the introduction of computers did not have spillover effects on learning in other subjects.

11.13.   Discrimination in Grading in India (83)
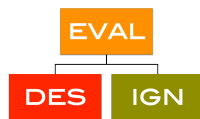
Sample: 120 teachers

Intervention Details: Researchers used a randomized evaluation to test for discrimination in grading in India. They recruited teachers to grade exams, and randomly assigned child "characteristics" (age, gender, and caste) to the cover sheets of exams to ensure that were was no relationship between these observed characteristics and the exam quality. Some level of discriminatory behaviour was observed, as teachers gave test papers assigned to lower castes worse scores than those that were assigned to a high caste.

11.14.   Balwadi Deworming in India (*84*)

Location: Slums of Delhi, India

Sample: 200 preschools with 2,392 children aged 2-6 years old

Intervention Details: The program studied the impact of delivering a package consisting of iron and vitamin A supplementation and deworming drugs to 2-6 year old children through an existing preschool network. Large gains in child weight—roughly 0.5 kg on average—were found in the treatment schools relative to comparison schools during the first five months of the project. Average preschool participation rates increased sharply by 5.8 percentage points among treated children, reducing preschool absenteeism by roughly one fifth.

11.15.   Impact of Female Leadership on Aspirations and Educational Attainment for Teenage Girls in India (85)

Location: Birbhum District, West Bengal, India

Sample: 495 villages

Intervention Details: This study examines the impact of female leadership on parents' aspirations for their children as well as adolescents' aspirations for themselves, and whether such changes in aspirations can impact education and labor outcomes. In villages with a female leader for two election cycles, the gender gap in aspirations decreased by 0.14 standard deviations. The presence of a female leader also led to a decrease (0.17 of a standard deviation) in the gender gap in adolescent aspirations. Adolescent girls in villages twice reserved were more likely to not want to be a housewife or have their occupation determined by their in-laws (8.3 percentage points); to want to marry after 18, (8.8 percentage points); and to want a job that requires an education (8.6 percentage points). By the second cycle of female leadership, the gender gap in educational outcomes was completely erased and the gender gap in time spent on household activities declined by 18 minutes.

11.16.   Encouraging Teacher Attendance through Monitoring with Cameras (86)

Location: Udaipur district, Rajasthan, India

Sample: 113 Informal Education Centers

Intervention Details: This study estimated the effect of incentives on teacher attendance and of increased teacher attendance on students' attendance and abilities in math and language. In the intervention schools, teachers received a 50 INR (USD 1.15) bonus for each additional day they attended in excess of 20 days, and were fined 50 INR for each of the 20 days they skipped work. In order to monitor teacher attendance, each teacher was given a camera, along with instructions to have one student take a picture of the teacher and the class at the start and close of each school day.

The program resulted in an immediate and long lasting improvement in teacher attendance rates in treatment schools. Over the 30 months of the study, teachers in the program schools had an absence rate of 21 percent, compared to 44 percent at baseline and 42 percent in the comparison schools. One year into the program, test scores in the treatment schools were 0.17 standard deviations higher than in the comparison schools. Two and a half years into the program, children from the treatment schools were also 10 percentage points (or 62 percent) more likely to transfer to a formal primary school.

11.17.   The Impact of School Grants on Household Substitution and Students' Test Scores in India (*87*)

Location: Andhra Pradesh, India

Sample: 200 government-run schools

Intervention Details: Researchers measured household spending changes and student test score gains in response to unanticipated as well as anticipated changes in school funding.

Results: It was found in both settings that households offset anticipated grants more than unanticipated grants. Also, unanticipated school grants lead to significant improvements in student test scores but anticipated grants have no impact on test scores.

11.18.   Bridge Classes and Peer Networks in Out-of-School Children in India (*88*)
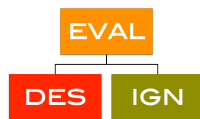
Location: Gurgaon, India

Sample: 1,303 out-of-school children

Intervention Details: Researchers tested the effects of peer networks on the enrollment and attendance of a bridge course for out-of-school children. Being in the treatment group and experiencing active recruitment to the program made a child 31% more likely to attend classes at all and 13% more likely to attend the class on a given day than a child who did not receive active recruitment. Moreover, children who had a friend receiving the active recruitment treatment were 6.3 percentage points more likely to attend the classes. A 10 percentage point increase in participation by a mutual friend increases a child's participation by 4.2 percentage points, and a 10% increase in participation by a sibling increases a child's participation by 6.1 percentage points.

11.19.   The Aggregate Effect of School Choice: Evidence from a two-stage experiment in India (*30*)

Location: Andhra Pradesh

Intervention Details: This study examines the impact of a school choice program in the Indian state of Andhra Pradesh that featured a unique two-stage lottery-based allocation of school vouchers that created both a student-level and a market-level experiment. After two and four years of the program, researchers found no difference between the test scores of lottery winners and losers on Math and Telugu (native language). However, private schools spent significantly less instructional time on these subjects. Averaged across all subjects, lottery winners score 0.13 higher, and students who attend private schools score 0.23 higher. Their results suggest that private schools in this setting deliver (slightly) better test score gains than their public counterparts, and do so at substantially lower costs per student.

12. Cost Effectiveness of Interventions

A number of strategies to improve student learning have been evaluated. These different strategies also incur drastically different costs, and achieve learning gains with much greater cost-effectiveness than others. The cost-effectiveness of each program is measured as the ratio of the aggregate impact of the program to the aggregate cost of implementing the program.

The cost effectiveness of various interventions as summarized by the Poverty Action Lab is given below:

- When access to education is extremely limited, getting children into school can lead to large learning gains.
- In areas with high enrollment rates, it is less clear that increasing attendance on its own is a cost-effective strategy, although improving student motivation to attend and learn can be very cost-effective.
- Incentivizing students and their families by providing information on the higher wages earned by those with more years of schooling is a very cost-effective way to improve student attendance and test score performance.
- Providing "more of the same" resources is generally insufficient to improve learning when unaccompanied by other reforms.
- Interventions that direct instruction toward children's actual learning levels are the most consistently effective at improving learning outcomes, and are also very cost-effective.
- Incentives for teachers can lead to significant learning gains if they are objectively administered and structured in such a way as to discourage "teaching to the test."
- Adding an extra teacher on a short-term contract can produce significant learning gains at a relatively low cost.
- Providing additional resources or information to the community may be insufficient to improve education quality if community members are not given a clear avenue or sufficient power to affect change.

The following figure shows the cost-effectiveness of programs that aim to improve student learning (*89*).

The left panel shows the estimated impacts measured in standard deviations (SDs) and the 90% confidence intervals. The right panel shows (on a log scale) how many SDs of test-score improvement could be gained from an investment of $100. It is observed that neither providing additional textbooks nor supplying instructional flip charts increased test scores in Kenya. However, studies in both Kenya and India found test-score gains from supplementing civil-service teachers with locally hired teachers hired on short-term contracts. In case of Kenya, the SD was over 100. A computer-assisted learning (CAL) program in India, which used math software that allowed children to learn at their own pace, increased scores by 0.48 SD or 1.54 SD per $100 spent.
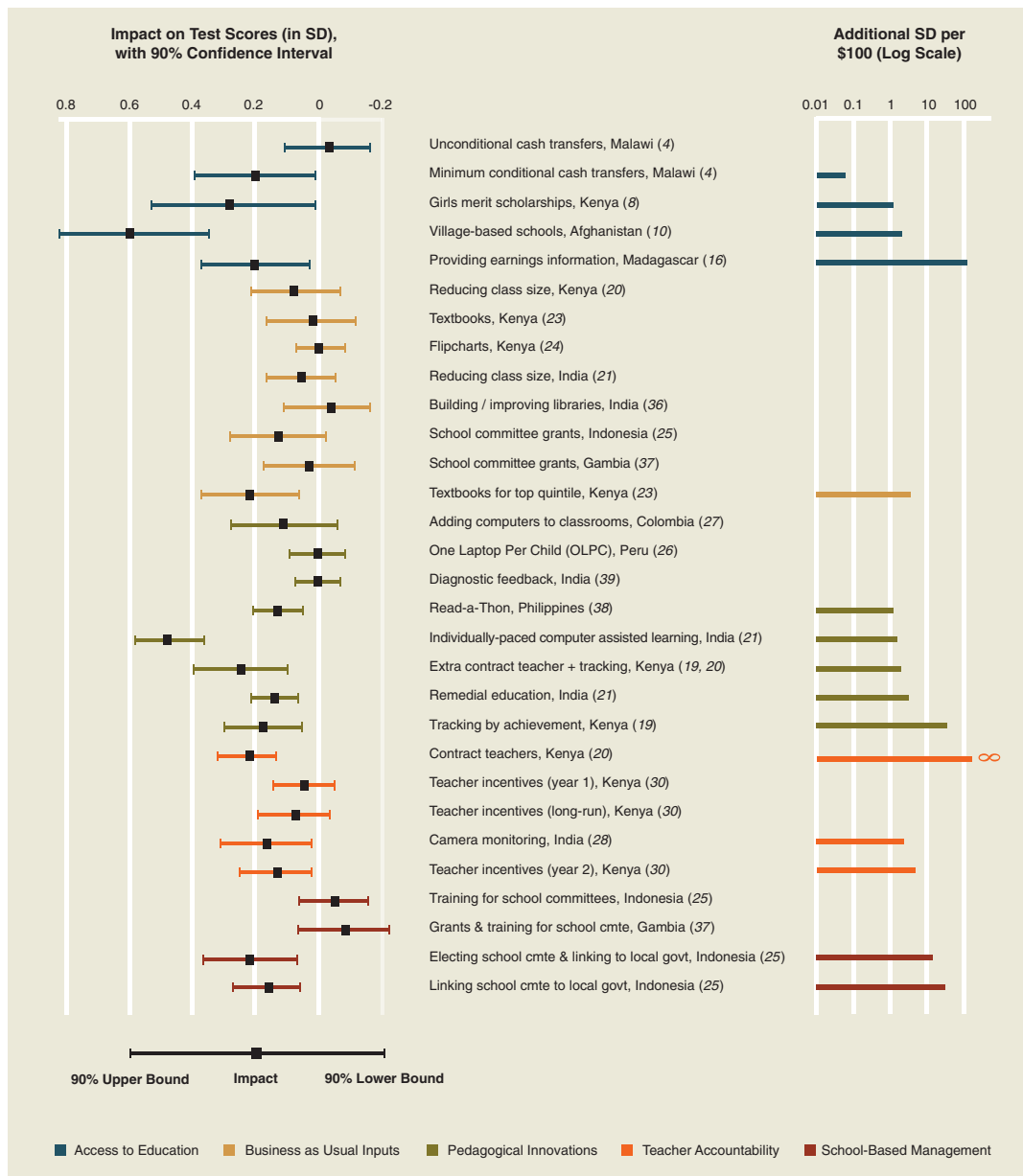
Figure 16. *Cost effectiveness of various educational interventions across the world. Taken from Kremer et al., 2013(89).*

However there were no significant test-score gains in Peru from the One Laptop Per Child program or a Colombian CAL program potentially because the programs did not tailor instruction to each student's level of knowledge and because the computers in Colombia were not tied to the curriculum and therefore not widely used. Finally, it can be concluded that providing additional inputs without changing pedagogy or governance has had limited impact, whereas adapting teaching methods to reach the varied learning levels in developing countries is highly effective (*89*).

13. References and Links

1. D. S. Kothari (1966). Education and National Development (The Kothari Commission Report). from:
    http://www.dise.in/Downloads/KothariCommissionVol.1pp.1-287.pdf
2. Government of India (1986). National Policy on Education. from:
    http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/NPE86-mod92.pdf
3. Government of India (1968). National Policy on Education. from:
    http://mhrd.gov.in/sites/upload_files/mhrd/files/document-reports/NPE-1968.pdf
4. Government of India (1992). National Policy on Education. from:
    http://www.ncert.nic.in/oth_anoun/npe86.pdf
5. National Council for Educational Research and Training (2005). National Curriculum Framework. from:
    http://www.ncert.nic.in/rightside/links/pdf/framework/english/nf2005.pdf
6. National Council for Educational Research and Training (1975). National Curriculum Frameworks. from:
    http://www.ncert.nic.in/oth_anoun/NCF_10_Year_School_eng.pdf
7. National Council for Educational Research and Training (1988). National Curriculum Frameworks. from:
    http://www.ncert.nic.in/oth_anoun/NCESE_1988.pdf
8. National Council for Educational Research and Training (2000). National Curriculum Frameworks. from:
    http://www.ncert.nic.in/oth_anoun/NCF_2000_Eng.pdf
9. Ministry of Human Resource and Development. from:
    http://www.mhrd.gov.in/elementaryeducation1
10. India Education (2012). Structure of Education. from:
    http://www.indiaeducation.net/indiaedudestination/structure/structure-of-education.aspx
11. National University of Educational Planning and Administration (2013). School Education in India.   Retrieved 2014, from:
    http://www.dise.in/Downloads/Publications/Documents/U-DISE-SchoolEducationInIndia-2013-14.pdf
12. S. Desai, A. Dubey, B. L. Joshi, M. Sen, A. Shariff, R. Vanneman. (2007).
13. S. Chandra, A. Joshi, M. Gaur, "Report of the Review Committee on the Delhi School Education Act," (Directorate of Education, Delhi, 2012).
14. National University of Educational Planning and Administration (2014). Elementary Education in India: Flash Statistics. from:
    http://www.dise.in/Downloads/Publications/Documents/Flash Statistics2013-14.pdf
15. Central Board of Secondary Education. Affiliation Bye-laws. from:
    http://cbseaff.nic.in/cbse_aff/attachment/onlineservices/affiliationbyelaws_14112012.pdf
16. Government of India (2011). An Approach to the 12th Five Year Plan. from:
    http://planningcommission.gov.in/plans/planrel/12appdrft/appraoch_12plan.pdf

17. United Nations in India (2014). Global Education First Initiative. from: http://in.one.un.org/task-teams/global-education-first-initiative

18. Government of India (2009). All India Survey of Out-of-school Children of Age 5 & in 6-13 Years Age Group. from: http://www.educationforallinindia.com/Survey-Report-of- out-of-school-children-IMRB-MHRD-EDCil-2009.pdf

19. Government of India (2010). Statistics of School Education, 2010-2011 from: http://mhrd.gov.in/sites/upload_files/mhrd/files/SES-School_201011_0.pdf

20. Government of India (2013). Eighteenth Joint Review Mission. Aide Memoire. from: http://ssa.nic.in/monitoring-documents_old/jrm/18th JRM/Final Aide Memoire.pdf

21. National Portal of India. District Primary Education Programme, DPEP. from: http://india.gov.in/my-government/schemes/district-primary-education-programme-dpep

22. Sarva Shiksha Abhiyan. Financial Management Plan. from: http://ssa.nic.in/financial-mgmt-docs/fm-manual-as-on-may18th/Pages-1 to 100-Revised Manual-FM-P.pdf

23. Avani Kapur (2014). Budget Briefs, Sarva Shiksha Abhiyan, GoI, 2014-15. from: http://www.accountabilityindia.in/sites/default/files/sarva_shiksha_abhiyan_0.pdf

24. Ministry of Human Resource and Development. Rashtriya Madhyamik Shiksha Abhiyan. from: http://mhrd.gov.in/rmsa

25. Avani Kapur (2014). Budget Briefs, Rashtriya Madhyamik Shiksha Abhiyan, GoI, 2014-15. from: http://www.accountabilityindia.in/sites/default/files/rmsa_0.pdf

26. Ministry of Human Resource and Development (2014). Rashtriya Madhyamik Shiksha Abhiyan, Joint Review Mission Report. from: http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/4th JRM AM 2014 08 23 FINAL _2_.pdf

27. Government of India (2014). RMSA: Physical targets and Achievements. from: http://rmsaindia.org/images/files/how-do-i-find/Physical Targets and Achievements.pdf

28. Government of India (2009). The Right of Children to Free and Compulsory Education Act. from: http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/rte.pdf

29. V. Raina (2013). School Recognition under the RTE. from: https://http://www.youtube.com/watch?v=-CSDfS0qDIQ

30. K. Muralidharan, V. Sundararaman, The Aggregate Effect of School Choice: Evidence from a two-stage experiment in India. (2013).

31. Abhijit V. Banerjee, Diva Dhar, Rohini Pande, Yashas Vaidya, Michael Walton, Jeff Weaver (2011). Deprivation, Preferences and Political Engagement among the Urban Poor. from: http://www.theigc.org/wp-content/uploads/2014/08/urbanisation-presentations-gw2011.pdf

32. R. Chetty, J. N. Friedman, N. Hilger, E. Sarez, D. W. Schanzenbach, D. Yagan, How does your Kindergarten Classroom affect your Earnings. Evidence from Project Star. *The Quarterly Journal of Economics* **CXXVI**, (2011).
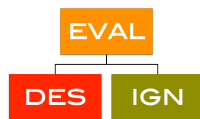
33. A. Banerjee, S. Cole, E. Duflo, L. Linden, Remedying Education: Evidence from Two Randomized Experiments in India*. *The Quarterly Journal of Economics* **122**, 1235-1264 (2007).

34. H. Abadzi, Instructional time loss in developing countries: Concepts, measurement, and implications. *The World Bank Research Observer* **24**, 267-290 (2009).

35. World Bank (1997). Primary Education in India.

36. J. Dreze, G. G. Kingdon, School participation in rural India. *Review of Development Economics* **5**, 1-24 (2001).

37. E. A. Hanushek, The Failure of Input-Based Schooling Policies. *Economic Journal* **113**, F98 (2003).

38. P. W. Glewwe, E. A. Hanushek, S. D. Humpage, R. Ravina, "School resources and educational outcomes in developing countries: A review of the literature from 1990 to 2010," (National Bureau of Economic Research, 2011).

39. A. Abogan, A. Achakzai, V. Bersudskaya, S. Chaskel, M. Corrarino, E. Garin, B. Hoody, C. Johnson, S. Vyas, "Lessons in Learning: An analysis of Outcomes in India's Implementation of the Right to Education Act," (Princeton University, Woodrow Wilson School of Public and International Affairs, 2013).

40. K. Muralidharan, in *NCAER-Brookings India Policy Forum 2012*. (2012).

41. F. Afridi, Child Welfare Programs and Child Nutrition: Evidence from a Mandated School Meal Program in India. *Journal of Development Economics* **92**, 152-165 (2010).

42. C. Vermeersch, M. Kremer, *School meals, educational achievement, and school competition: evidence from a randomized evaluation*. (World Bank Publications, 2005), vol. 3523,

43. M. Kremer, A. Holla, Improving Education in the Developing World: What Have We Learned from Randomized Evaluations? *Annu. Rev. Econ.* **1**, 513-542 (2009).

44. E. Borkum, F. He, L. L. Linden, "School Libraries and Language Skills in Indian Primary Schools: A Randomized Evaluation of the Akshara Library Program. NBER Working Paper No. 18183," (National Bureau of Economic Research. 1050 Massachusetts Avenue, Cambridge, MA 02138-5398. Tel: 617-588-0343; Web site: http://www.nber.org, 2012).

45. Accountability Initiative (2014). Policy Brief: School Management Committees. from: http://www.accountabilityindia.in/sites/default/files/policy_brief_school_management_committees_successes_challenges__opportunities_0.pdf

46. Central Board of Secondary Education. Continuous and Comprehesive Evaluation. from: http://www.cbse.nic.in/cce/index.html

47. Central Board of Secondary Education. Continuous and Comprehesive Evaluation - Teachers' Manual. from: http://www.cbse.nic.in/cce/cce-manual/CBSE-FA-Class-IX %28Science%29 Final.pdf

48. C. Vakil (2006). National Focus Group on Examination Reforms.

49. V. Deora, A. A. Aguiar (2014). Guidelines for Large-Scale Learner Assessments: Practices for Design, Implementation and Use of Assessments by States. from: http://www.centralsquarefoundation.org/pdf/guidelines_for_large-scale_assessments.pdf

50. J. Oza, G. Bethell (2013). Assessing Learning Outcomes: Policies, Progress and Challenges. from: http://www.ssatcfund.org/LinkClick.aspx?fileticket=g6cmLV3Gr04%3D&tabid=2508

51. National Council for Educational Research and Training (2013). National Achievement Survey: Summary of Key Findings. from: http://mhrd.gov.in/sites/upload_files/mhrd/files/upload_document/Summary NAS Class-3 (Cycle-3)-Final.pdf

52. ASER, "Annual Status of Education Report " (2013).

53. T. Cowen, in *Marginal Revolution*. (2011).

54. Central Board of Secondary Education. Problem Solving Assessments. from: http://www.icbse.com/psa

55. Central Board of Secondary Education. from: http://cbse.nic.in/welcome.htm

56. Council for the Indian School Certificate Exams. from: http://www.cisce.org/council.aspx

57. International Baccalaureate. from: http://www.ibo.org/country/IN/

58. National Institute of Open Schooling. from: http://www.nios.ac.in/

59. Department of School Education and Literacy. Organizational Structure of Teacher Education in India. from: http://www.teindia.nic.in/Organogram-Chart_National.aspx

60. National Council for Teacher Education. from: http://www.ncte-india.org/

61. G. Kingdon, V. Sipahimalani-Rao, Para-Teachers in India: Status and Impact. *Economic and Political Weekly* **45**, 59-67 (2010).

62. P. Atherton, G. Kingdon, paper presented at the Indian Statistical Institute, 2010.

63. Central Board of Secondary Education. Central Teacher Eligibility Test. from: http://ctet.nic.in/ctetapp/welcome.aspx

64. Central Board of Secondary Education (2014). Central Teacher Eligibility Test. from: http://59.179.16.89/ctetomr/stats.aspx

65. Government of India (2014). Analysis of Budgeted Expenditure on Education. from: http://mhrd.gov.in/sites/upload_files/mhrd/files/statistics/ABE_2010-13.pdf

66. V. Mulay (2006). National Focus Group on Educational Technology. from: http://www.ncert.nic.in/new_ncert/ncert/rightside/links/pdf/focus_group/educational_technology.pdf

67. Government of India. Information and Communication Technology. from: http://mhrd.gov.in/ict_overview

68. Government of Tamil Nadu (2011). Free distribution of laptop computers to the students studying in Government and Government aided Schools and Colleges – Guidelines. from: http://cms.tn.gov.in/sites/default/files/gos/spi_e_17_2011.pdf

69. Government of Uttar Pradesh (2013). Progress Report. from: http://information.up.nic.in/Publication_Video/Sandesh_June_2013-f.pdf

70. Central Square Foundation. CSF EdTech Map. from: http://www.centralsquarefoundation.org/CSF-EdTech-Map/List

71. Indialytics. These companies are going to make it big in digital education through ICT. from: http://indalytics.com/case-studies/content-providers/these-companies-are-going-to-make-it-big-in-digital-education-through-ict/

72.   Review Edu. Product Reviews. from: http://www.reviewedu.co/

73.   J. Berry, Child control in education decisions: an evaluation of targeted incentives to learn in India. *Unpublished manuscript*, (2009).

74.   K. Muralidharan, V. Sundararaman, The Impact of Diagnostic Feedback to Teachers on Student Learning: Experimental Evidence from India. *The Economic Journal* **120**, F187-F203 (2010).

75.   K. Muralidharan, V. Sundararaman, Contract teachers: experimental evidence from India. (2013).

76.   F. He, L. L. Linden, M. MacLeod, A better way to teach children to read? Evidence from a randomized controlled trial. *Cambridge, MA: Abdul Latif Jameel Poverty Action Lab (JPAL)*, (2009).

77.   E. Borkum, F. He, L. L. Linden, The Effects of School Libraries on Language Skills: Evidence from a Randomized Controlled Trial in India. (2012).

78.   L. L. Linden, M. MacLeod, How to Teach English in India: Testing the Relative Productivity of Instruction Methods within the Pratham English Language Education Program.

79.   A. V. Banerjee, R. Banerji, E. Duflo, R. Glennerster, S. Khemani, Pitfalls of Participatory Programs: Evidence from a randomized evaluation in education in India. *American Economic Journal: Economic Policy*, 1-30 (2010).

80.   K. Muralidharan, Long-Term Effects of Teacher Performance Pay: Experimental Evidence from India. *Society for Research on Educational Effectiveness*, (2012).

81.   K. Muralidharan, V. Sundararaman, Teacher Performance Pay: Experimental Evidence from India. NBER Working Paper No. 15323. (2009).

82.   L. L. Linden, *Complement Or Substitute?: The Effect of Technology on Student Achievement in India*. (InfoDev, 2008),

83.   R. N. Hanna, L. L. Linden, Discrimination in grading. *American Economic Journal: Economic Policy* **4**, 146-168 (2012).

84.   G. J. Bobonis, E. Miguel, C. Puri-Sharma, Anemia and school participation. *Journal of Human Resources* **41**, 692-721 (2006).

85.   L. Beaman, E. Duflo, R. Pande, P. Topalova, Female leadership raises aspirations and educational attainment for girls: A policy experiment in India. *science* **335**, 582-586 (2012).

86.   E. Duflo, R. Hanna, S. P. Rya, Incentives work: Getting teachers to come to school. *The American Economic Review* **102**, 1241-1278 (2012).

87.   J. Das, S. Dercon, J. Habyarimana, P. Krishnan, K. Muralidharan, V. Sundararaman, School inputs, household substitution, and test scores. (2011).

88.   L. Linden, Bridge Classes and Peer Networks among Out-of-school Children in India. *Essays on Household Decision Making in Developing Countries*, 59 (2009).

89.   M. Kremer, C. Brannen, R. Glennerster, The challenge of education and learning in the developing world. *Science* **340**, 297-300 (2013).

14. List of Abbreviations

AWP	Annual Work Plan
AWP&B	Annual Work Plan and Budget
ASER	Annual Survey of Education Report
BBC	British Broadcasting Corporation
BRC	Block Resource Centre
CABE	Central Advisory Board of Education
CAL	Computer Aided Learning
CBSE	Central Board of Secondary Education
CCE	Continuous and Comprehensive Evaluation
CET	Centre for Educational Technology
CIET	Central Institute of Education Technology
CISCE	Council for Indian School Certificate Examinations
CLASS	Computer Literacy and Studies
CTE	College of Teacher Education
CTET	Common Teacher Eligibility Test
CRC	Cluster Resource Centre
CVE	Certificate in Vocational Education
DIET	District Institute of Education and Training
DPEP	District Primary Education Program
DSEL	Department of School Education and Literacy
EI	Educational Initiatives
ET	Education Technology
GER	Gross Enrolment Ration
GoI	Government of India
IASE	Institutes for Advanced Learning in Education
IB	International Baccalaureate
ICSE	Indian Certificate of Secondary Education
ICT	Information and Communication Technology
IEDSS	Inclusive Education for Disabled at Secondary Stage
IDMI	Infrastructure Development In Minority Institution
INSAT	Indian National Satellite
ISC	Indian School Certificate
KVS	Kendriya Vidyalaya Sangathan
LEP	Learning Enhancement Program
MDM	Mid-day Meal
MHRD	Ministry of Human Resource Development
NAS	National Assessment Survey
NCERT	National Council of Research and Training
NCF	National Curriculum Framework
NCPCR	National Commission for Protection of Child Rights
NCTE	National Council for Teacher Education
NER	Net Enrolment Ration
NGO	Non-Governmental Organisation
NIEPA	National Institute of Educational Planning and Administration
NIOS	National Institute of Open Schooling
NOS	National Open School

NPE	National Policy on Education
NUEPA	National University of Educational Planning and Aministration
NVS	Navodaya Vidyalaya Samiti
PAB	Project Approval Board
PISA	Programme for International Student Assessment
PSA	Problem Solving Assessment
PSK	Prarambhik Shiksha Kosh
PTR	Pupil Teacher Ratio
RCT	Randomized Controlled Trials
RIE	Regional Institute of Education
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
RTE	Right of Children to Free and Compulsary Education Act
SCERT	State Council for Education Research and Training
SD	Standard Deviation
SDP	School Development Plan
SIET	State Institutions of Education Technologies
SMC	School Management Committees
SPD	State Project Director
SSA	Sarva Shiksha Abhiyaan
TaRL	Teaching at the Right Level
TET	Teacher Eligibility Test
TTI	Teacher Training Institutions
U-DISE	Unified District Information System for Education
UEE	Universal Elementary Education
UGC	University Grants Commission
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPE	Universal Primary Education
UP	Upper Primary
UT	Union Territory
VE	Vocationsl Education
VEC	Village Education Committee