KPMG in India contact

Mritunjay Kapur
National Head,
Markets and Strategy
Head - Technology, Media and Telecom
T: +91 124 307 4797
E: mritunjay@kpmg.com

Narayanan Ramaswamy
Partner and Head,
Education and Skill Development - Social
T: +91 443 914 5000
E: narayananr@kpmg.com

Madhavan Vilvarayanallur
Partner,
Infrastructure and Government Services- Social
T: +91 443 914 5000
E: vmadhavan@kpmg.com

KPMG.com/in

CII contact

Shalini S Sharma
Senior Consultant and Head-Higher Education
T: +91 124 401 4060-67
F: +91 124 401 4080
E: shalini.sharma@cii.in

Confederation of Indian Industry
The Mantosh Sondhi Centre
23, Institutional Area, Lodi Road,
New Delhi - 110 003 (India)
T: +91 11 4577 1000 / 2462 9994-7
F: +91 11 2462 6149
E: info@cii.in

www.cii.in

Follow us on:
kpmg.com/in/socialmedia

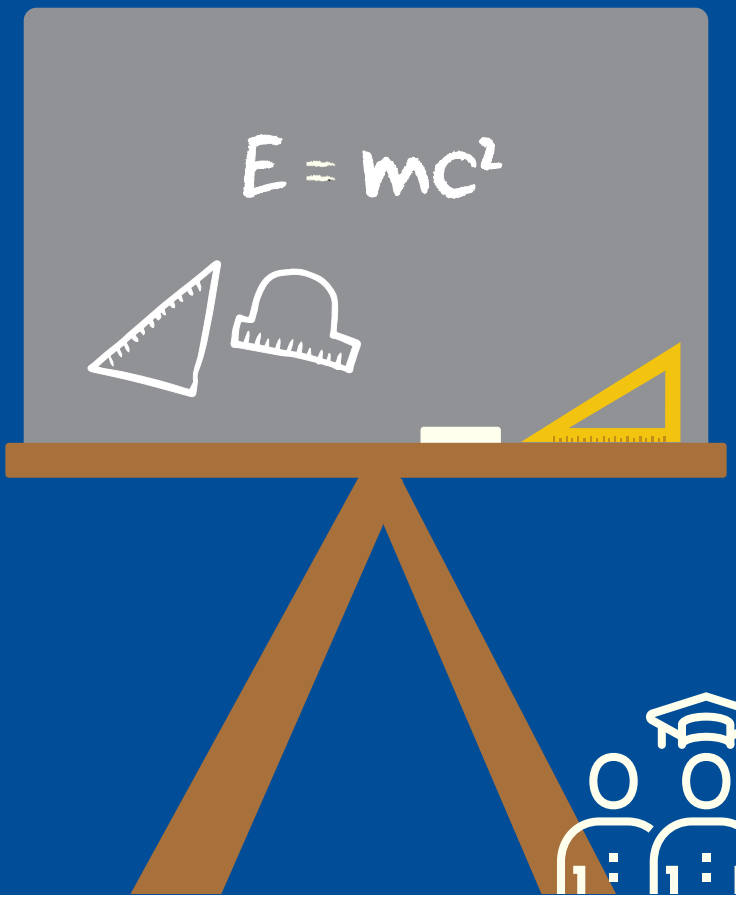
twitter.com/followcii **facebook.com/followcii**

Printed in India. (038_THL1217)

KPMG

Confederation of Indian Industry

Improving learning outcomes by raising in-class teacher effectiveness



December 2017

KPMG.com/in

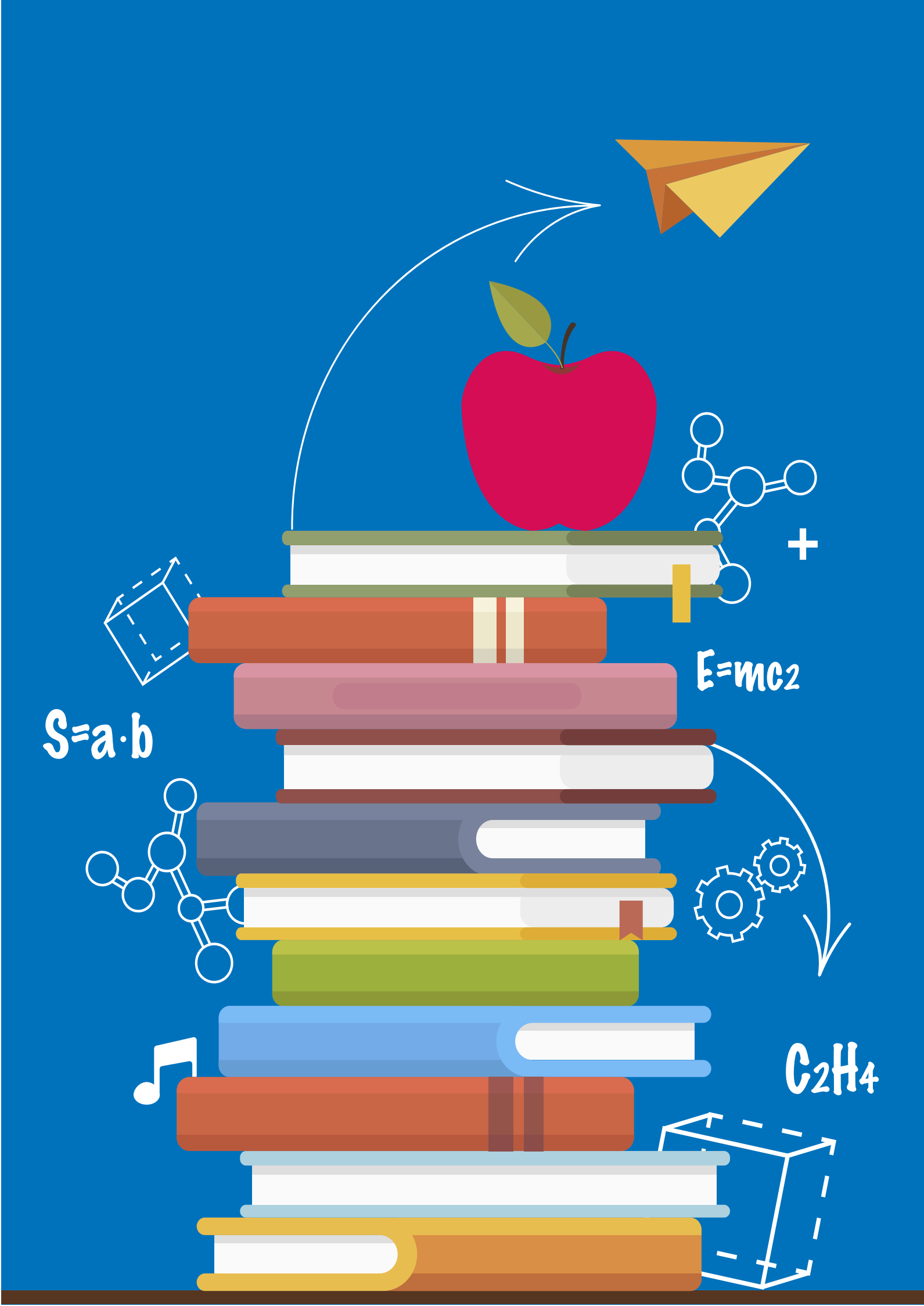
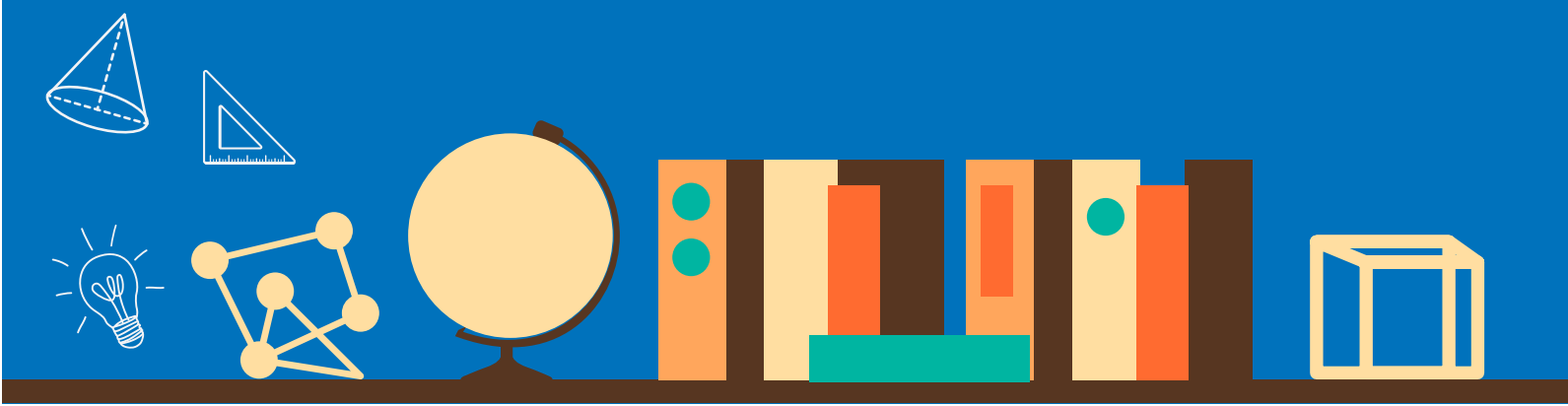

S=a·b
E=mc2
C2H4

Table of contents



Foreword

KPMG in India

'Learning outcomes' has been the latest buzzword in academic circles. - as the mantra to measure effectiveness. Learning outcomes is all about results. It doesn't matter what is the curriculum or where is the school or for that matter medium of instruction or reputation of the institution - all that matters is - is it effective? This is a positive development as it means that reach and availability has been largely achieved. While in a complex country like that of ours, there will be some part that will always have lack of access/ lack of infrastructure - the bigger question now is the quality and relevance of education and not mere availability. While this measure of learning outcome is relevant for the pupil. Teacher, classroom, school etc., the learning outcome is an important indicator for the state in palming and executing large scale education intervention programs for schools in public domain. Although multiple factors affect the learning outcomes and quality of education in the public education system, activities inside the classroom have the most critical impact.

The government recognises this fact and hence has emphasised it through very specific mentions in the fundamental duties of education service providers. While there is many a talk about flipped classroom and such modern approaches, the classroom still remains as the core of learning for our students.

This white paper talks about the public education system, and identifies the criticality of in-class teaching as the most effective way to address the quality-gap in the present public education system in India. The paper also has some important suggestions for stakeholders concerned to accelerate the quest for providing quality education in the public school classrooms in India. I truly believe that this would help understand some of the underlying challenges, focus on some of the critical gaps and shape the road ahead.

Narayanan Ramaswamy
Partner and Head
Education and Skill Development - Social
KPMG in India

Confederation of Indian Industry

Quality of manpower is a critical component for competitiveness of industry. India does not lack numbers but right skilling is needed at every level. The foundation of a good academic as well as professional career is laid during schools, more specifically at the primary school level. The mind's ability to learn and absorb is at its maximum between the age of 4 and 10. According to Michael Phelps, biophysicist at UCLA and co-inventor of PET scan, "If we teach our children early enough, it will affect the organisation, or 'wiring,' of their brains." The importance of good schooling at primary level therefore cannot be over emphasised.

There are more than 100 million children enrolled in schools at the primary level in India. With such large numbers, it is natural that the quality of teaching and outcomes is patchy and not of a uniform high level. This is an area of concern for both, the government and industry. When children with poor learning levels proceed to higher grades, it is often found that they are unable to cope up with the pressure of teaching and end up dropping out of the system earlier than desirable. Preventing this and improving the quality of teaching and learning at every level is therefore of paramount importance for all stakeholders.

At CII, we continually discuss and debate these issues and ways to tackle them. Several of us in industry are already doing a lot of work in this direction as part of our corporate social responsibility. Companies are working with government schools through their foundations, they have partnered with state governments and adopted schools so that better facilities and resources could be provided to students. Efforts are also afoot within CII to launch a national mission on improving learning outcomes.

I would like to thank KPMG in India for associating with CII for this significant initiative and jointly producing this white paper on 'Strengthening teacher effectiveness in public school classrooms.' I hope policy makers and the society at large finds these recommendations worth emulating.

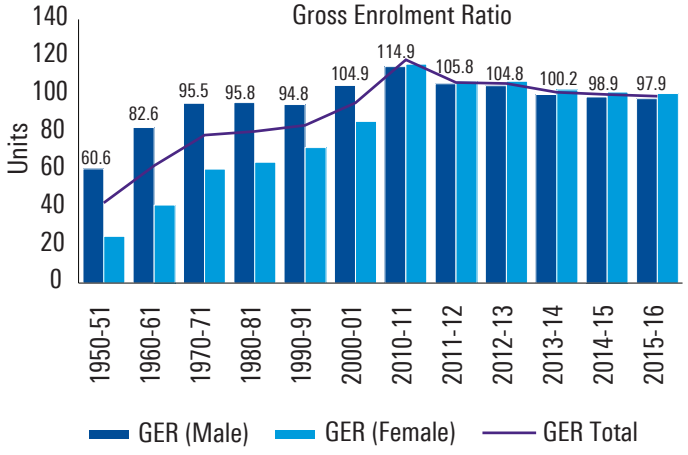
N Kumar
Chairman
CII National School Committee

Introduction

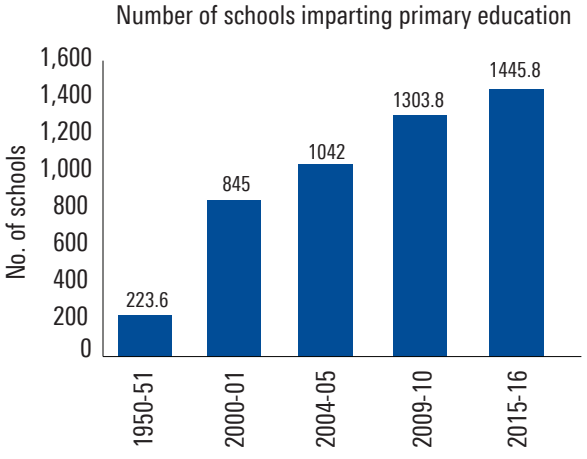
Primary education is the initial stage of education aimed at creating, establishing, and offering opportunities to all children to develop their cognitive, emotional, and social skills to prepare them for their further school career[1] . A solid foundation in primary schooling has a far greater impact on a child's academic progress than factors such as family background or gender[2]. It is the foremost phase of compulsory education and is the basis on which the growth of each citizen and the country as a whole pivots. It is therefore imperative for nations to build a strong primary education system.

India primary education system is among the largest in the world with nearly 1.5 million schools and over 100 million students enrolled[3]. This large size warrants significant investments to provide high quality education at primary levels. Over the years, the government has worked on strengthening its education system at the elementary level through various policies and schemes such as Sarva Shiksha Abhiyan (SSA), Mid-day meal scheme, Right to Education Act (RTE), among others. This has in turn resulted in a six times growth in number of schools offering primary education, thirteen times increase in number of teachers, and doubling of Gross Enrolment Ratio (GER) from 1950 to 2016.

Figure 1 Evolution in primary education indicators over the years



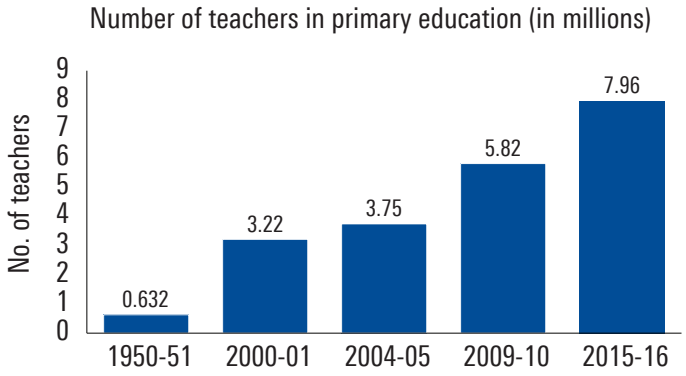
Source: District Information System for Education (DISE) Data, 2016



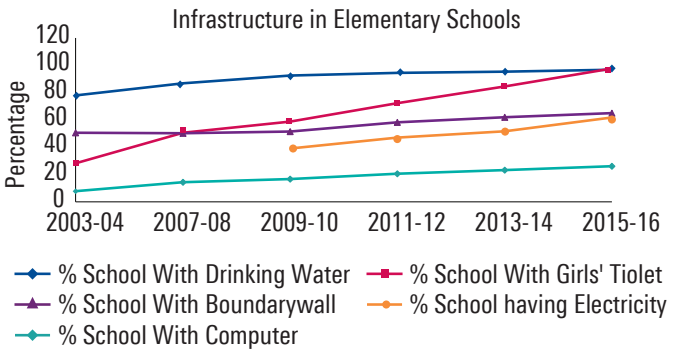
Source: District Information System for Education (DISE) Data, 2016

1. A firm foundation for pupil (2011)
2. The Effective Provision of Pre-School Education, a study conducted by Institute of Education, University of London
3. DISE 2016

Figure 1 Evolution in primary education indicators over the years



Source: District Information System for Education (DISE) Data, 2016



Source: District Information System for Education (DISE) Data, 2016

While we have achieved a near 100 percent enrolment at the primary level, improvement in learning outcomes has not kept pace with increase in enrolment ratios and in fact outcomes have fallen over the past decade. For instance, proportion of children in fifth grade who could perform basic division has declined from 42.5 per cent in 2007 to 26 per cent in 2016[4]. Moreover, proportion of fifth grade children who could read a second grade text has dropped from 53 per cent in 2006 to 48 per cent in 2016. There are numerous factors which contribute to this decline in learning outcomes namely, outdated curriculum and pedagogy, inadequate infrastructure facilities, low teacher quality and effectiveness, lack of accounting and monitoring mechanisms, skewed pupil-teacher ratio, and poor quality of classroom instruction.

India still trails behind many countries in terms of education spending and Pupil Teacher Ratio (PTR). Finland, considered to have one of the world's best education systems, spends 7.2 per cent of its GDP on education compared with India which spends around 3.8 per cent of its GDP on education Furthermore, India has a PTR of 25 compared with Japan and China, which have a PTR of 17[5].

Given all the above underlying reasons for poor learning outcomes in the country, in-class teacher effectiveness has been found to be one of the most critical factors affecting student achievements; this has also been reiterated across multiple research studies[6]. In fact, it has been found that lesser occurrence of low student achievements has a direct correlation with improved teaching quality[7]. For example, a comparison of students attending schools with varied levels of teaching quality in Poland revealed that a student attending a school with poor teaching quality was 34 per cent more probable to score below the science benchmark. Whereas, a student in Turkey was 30 per cent more likely to score below the benchmark. Moreover, teaching quality has the largest impact on children's social behaviour and intellectual development at the primary level.

Clearly, more can be done to increase learning outcomes by focusing on boosting the in-class effectiveness of teachers than by any other single factor. Not only, does in-class teacher effectiveness have an immediate impact on students, but also stays with them for future years. The paper is thus centred on examining specifics of factors affecting quality of in-class teaching in India and providing recommendations to modify the current situation.

> If a country is to be corruption free and become a nation of beautiful minds, I strongly feel there are three key societal members who can make a difference. They are the father, the mother and the teacher.
>
> - Dr.A.P.J.Abdul Kalam

4. Annual Status of Education Report, Pratham, 2016
5. UNICEF data on primary education, 2013
6. Teacher and Classroom Context Effects on Student Achievement: Implications for Teacher Evaluation, S. Paul Wright, Sandra Horn, & William Sanders, 1997
7. Trends in International Mathematics and Science Study, 2011

Key factors affecting in-class effectiveness of teachers

In-class teacher effectiveness is a complex combination of factors comprising of time for classroom instruction, teaching resources, teacher training, and systems for selecting, incentivizing, and monitoring teacher performance; this section examines each of the factors in greater detail.

1. Time for classroom instruction

Time for classroom instruction refers to the actual time spent by a teacher for preparing for class and for teaching within the classroom. It excludes time spent for any administrative duties or non-academic duties. This teaching time has a direct bearing on the student's opportunity to learn or learning time. There exists a strong correlation between extent of learning and amount of instructional time that a student receives in the classroom[1]. As a matter of fact, enhanced academic learning time is one of the key levers of enhancing student achievement.

In India, teachers spend a considerable proportion of their time outside the classroom for administrative, academic, or other scheme work. They are employed in multiple non-academic duties either by the government, government agencies, or by the school itself and have to report for these duties far away from their homes, in-turn driving levels of absenteeism. A study conducted by the All India Primary Teachers Federation in (month year) showed that teachers remain absent/are not able to attend school for a number of reasons such as election invigilation, decennial population census, clerical work in schools, preparation of voters' list, animal and bird surveys, below poverty line survey, and submission of various school related administrative documents at block or district level offices.

This diversion of responsibility reduces the time teachers have to prepare for teaching and the number of hours teachers are present in the classroom, thus adversely affecting student performance. Primary responsibility of teachers is teaching students in the classroom and hence any non-teaching duties should not take precedence.

Table 1 Teacher responsibility by type of teacher (percent)

Type of teacher	Registers	Mid-day meal duties	Extra-curricular	Admin	Other office	Other
Head	74.6	57.7	51.4	58.5	39.3	14.6
Regular	58.2	40.8	41.7	23.2	18.0	5.9
Para	44.9	37.3	41.0	17.7	8.4	4.9
Other	40.5	36.2	27.6	13.8	10.3	7.8

Source: Annual Status of Education Report, Pratham, 2011

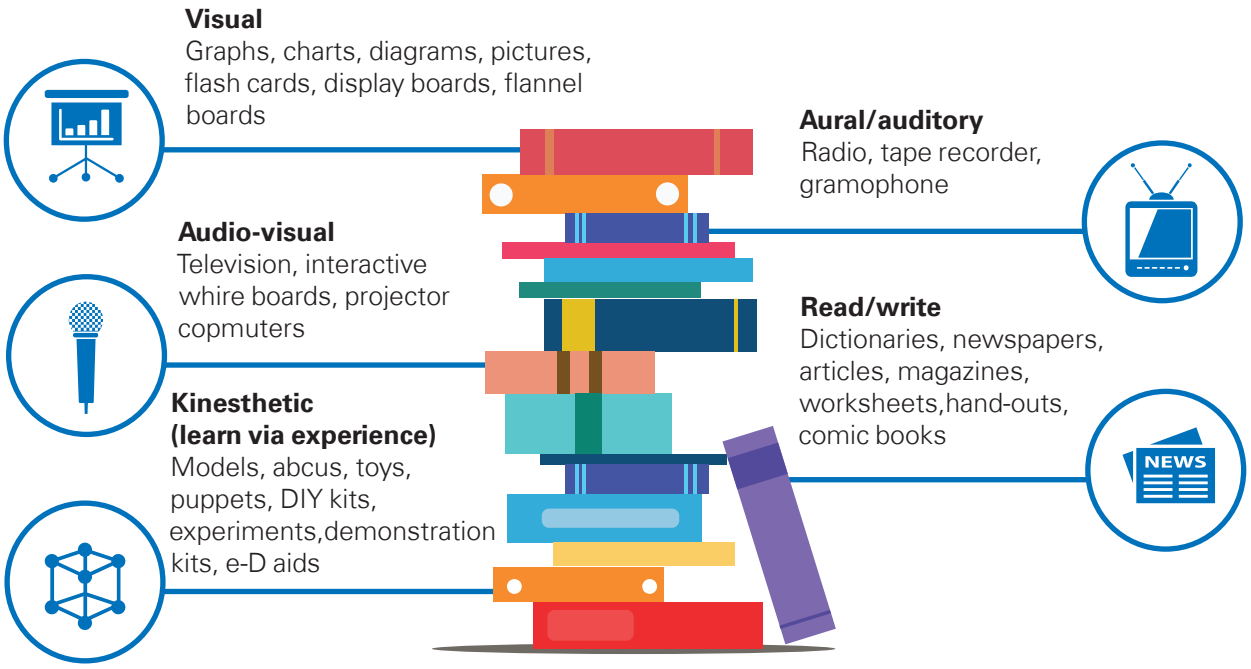
Note: The proportion of time spent by teachers across multiple duties does not add up to a 100 per cent because one teacher/individual handles multiple responsibilities.

1. John B. Carroll (1963)

2. Teaching resources

Teaching materials or resources is defined as tools which teachers use to deliver instruction effectively. They comprise both (i) intangible resources such as sources to discover teaching materials or assistance from other teachers and, (ii) tangible resources such as charts, posters, maps, globes, etc. Based on the type of sensory modalities used to absorb information or learning styles[2] teaching resources can be classified into visual, aural, audio-visual, read/write, and kinaesthetic as outlined below:

Categorisation of teaching resources



Source: KPMG in India analysis, November 2017

Existing literature demonstrates that use of teaching resources has a positive impact on educational productivity of students across all levels of education[3,4]. Considerable improvement in English test scores of low performing students in India have been observed when teachers are equipped with new instruction methods or tools[5]. Furthermore, an evaluation of schools under the Digital Hall School project, which involved playing DVD recordings of live classes taught by expert teachers, helped improve the test scores by nearly 72 per cent.

Consequently, teaching resources are becoming an integral component of every classroom given their numerous benefits – (i) improved clarity and retention by means of reinforcing a skill or concept (ii) increase in student engagement by stimulating interest of students by helping them interact with materials differently (iii) relieving fear, boredom, and anxiety by portraying information in a new and invigorating manner (iv) increasing student motivation by enabling differentiated instruction.

However, despite its advantages, teachers in primary schools in India have been observed to use teaching resources other than textbooks in barely 10 per cent of all classrooms. As per the **National Counil for Educational Research and Training** (NCERT) survey to assess teaching of English at primary level in government schools, only 5 per cent of teachers were making use of teaching aids such as picture cards. Lastly, as per a World Bank study conducted to assess teacher effectiveness in Bihar, it was found that teachers were either writing on the blackboard or asking students to write in their books or on slates. There was hardly any material other than text-books used for teaching.

2. Neil Fleming and Colleen Mills VARK model
3. The effect of visual learning aids on students' academic performance in public secondary schools, Joseph M Kaswa, 2015
4. Governmental investments in primary education and children's achievement in India, Hubert Department of Global Health, 2011
5. How to Teach English in India: Testing the Relative Productivity of Instruction Methods within the Pratham English Language Education Program, Fang He, 2008

Distribution of teaching methods deployed across Grade 2 and 4

Teaching methods	Class 2 (percent classrooms)	Class 4 (percent classrooms)
Writing on blackboard	67.2	69.0
Reading from textbook	63.8	66.9
Asking students to do any kind of written work	62.9	61.7
Asking students oral questions	57.4	58.3
Checking written work	51.0	48.2
Giving dictation	38.5	35.7
Asking students to recite, singly or all together	36.5	36.4
Asking students to write on blackboard	22.3	29.4
Asking students to work in groups	16.7	15.3
Asking students to use TLM other than textbook	**14.0**	**12.2**

Source: Teaching of English at primary level in government schools, National Council of Educational Research & Training, 2012

Numerous challenges persist resulting in lower adoption of teaching materials across schools as explained below:

Poor ability to use teaching resources effectively

A UNESCO report published in 2014 highlights findings from a study on the role of effective use of teaching resources in augmenting learning – as part of the study, adverse impact on student performance was noted with the introduction of computer labs. However, usage of internet for pedagogical purposes by the teacher resulted in creating a new and different learning experience for students, thus improving tests scores.

Based on a survey of select schools in Delhi by Central Square Foundation in 2016 titled Teaching with Technology: Early EdTech Adoption by Indian School Teachers, it was found that teacher's usage of computers is restricted to audio/ visual displays or for the purpose of student practice and is around 83 per cent[6]. But, usage for more complex purposes such as lesson planning, student assessment, peer learning, and communication drops considerably, even in schools which have access to both computers and internet. Similar patterns can be observed for teaching materials which are not technology based. Thus, this partial understanding of use of teaching resources results in both under-utilisation of infrastructure and in lower adoption rates. Teachers recognise this gap in understanding and are pushing towards ICT training to help them adopt technology in classrooms.

In yet another study by the World Bank in Bihar in (month year), almost 80 per cent of the teachers cited that they use Teaching Learning Material (TLM) other than textbooks, however, during classroom observations, this number was found to be only 17 per cent. A clear outcome of this discrepancy is that teachers are aware of elements of good teaching but are unable to put it into practice[7].

Indifferent attitude(s):

Even though some schools utilised grants obtained by the government to purchase charts and colours, these aids were kept locked away and never made it to the classroom[7]. Moreover, in many cases, these materials are used sparingly on special occasions such as demonstration classes or special inspections. This demonstrates a lack of seriousness on the part of teachers and school leadership to promote usage of TLM.

Insufficient fund allocation for teaching resources:

International agencies recognise that developing countries dedicate proportionately low funds to teaching resources

6. Teaching with Technology: Early EdTech Adoption by Indian School Teachers, Central Square Foundation, 2016
7. Teacher Performance in Bihar, India, World Bank, 2016

including books, maps, and other visual aids. Under the Sarva Shiksha Abhiyan (SSA), the government has allocated INR500 per teacher per year for teachers in Primary and upper Primary schools as TLM grant. The suggestive list of TLM materials that can be procured ranges from plastic models/lenses/mirrors for science subjects to globe/compass/atlas for social science subjects to flash cards/alphabets for English subjects. Given that a primary teacher teaches on an average of three to four subjects per school, INR500 is scarcely adequate to buy teaching resources across subjects and across classes. Teachers have even voiced concerns about head masters or school principals not providing adequate teaching learning material to perform their duty.

Under the Sarva Shiksha Abhiyan (SSA), the government has allocated INR500 per teacher per year for teachers in Primary and upper Primary schools as TLM grant. The suggestive list of TLM materials that can be procured ranges from plastic models/lenses/mirrors for science subjects to globe/compass/atlas for social science subjects to flash cards/alphabets for English subjects. Given that a primary teacher teaches on an average of three to four subjects per school, INR500 is scarcely adequate to buy teaching resources across subjects and across classes. Teachers have even voiced concerns about head masters or school principals not providing adequate teaching learning material to perform their duty[8].

3. Teacher training

In India, the Teacher Education Policy has changed significantly over the years, with inputs from various committees. Teacher education consists of two major components, pre-service and in-service training.

- Pre-service training refers to any training that teacher undergoes before s/he has commenced teaching. The government and government-aided teacher training institutions are financially supported by the respective state governments. Further, under the Centrally Sponsored Scheme on Teacher Education (CSS-TE), the central government also supports various institutions including the District Institutes of Education and Training (DIETs), Colleges of Teacher Education (CTEs) and Institutes of Advanced Studies in Education (IASEs)
- In-service training refers to a series of structured and well-defined activities/programmes to enhance in-class effectiveness of teachers, financially supported by the state governments. Under SSA, school teachers are provided with 14 days in-service training, untrained teachers are provided with 60 days refresher course and freshly trained recruits are oriented for 30 days. In addition to this training, financial support is also provided by the central government via this scheme.

Despite positive changes in capacity building of teachers over the past two decades, the reforms which would fortify teacher training from its core are still missing. Some of these gaps are mentioned below:

Fragmented training approach

The training effort is decentralised to empower each state for preparation of training calendar as per the state's requirement. About 6,740 Block Resource Centrs (BRCs) and 77,520 Cluster Resource Centres (CRCs) have been set up to offer academic support to teachers on a frequent basis[9]. In parallel, DIET's was responsible to provide leadership in innovating pre-service teacher training. While decentralisation was done for a more customised implementation of training programmes, the fragmented structure with lack of ownership and well-defined responsibilities of the stakeholders has actually deteriorated quality of training.

Practically oriented pre-service teacher education

Malawi has one of the highest teacher shortages across the globe, resulting in an average PTR of 76 at the primary school level, and thus in one of the lowest learning outcomes in the world. These shortages are more prevalent in rural areas, where teachers, particularly women are unwilling to teach.

To combat this situation, four teacher training colleges were established in rural areas. The training charts a 30-month cycle, broken down into eight periods, out of which one period is devoted to an entire school year of teaching practice. After this on-ground practice, trainees return to college for specialization and final examinations. Upon graduation, the new teachers are expected to work effectively in rural areas.

An evaluation of the program found that 72 per cent of trainees acknowledged the school practice component as the area of study that best equipped them for teaching in rural areas. Moreover, the program was successful in creating a continuous pool of effective teachers who developed skills in to teach in areas where they were most required.

Source: Education for All, Global Monitoring Report, UNESCO, 2014

8. Working conditions of teachers in Uttar Pradesh, National University of Educational Planning and Administration, 2016
9. Education for All towards Quality and Equity, Ministry of Human Resource Development, Aug 2014

Moreover, lack of coordinated efforts across the centre, state, and other external agencies in the form a consolidated training plan, results in a situation in which teachers recurrently attend the same training programs year after year. As per the study conducted by Indian Institute of Management Calcutta (IIM C), in (month year), the Block Resource Persons and Cluster Resource Persons are overburdened with lot of administrative work which defeats the very purpose these posts were created.

Variation in performance of bodies appointed to support teacher training

A study commissioned by Educational Consultants India (Ed CIL) on behalf of Department of School Education and Literacy, to evaluate activities carried out by various government bodies to improve quality of education at the district and block level, found that there was significant variation with respect to functioning and performance of BRCs and CRCs. For instance, in the states of West Bengal and Haryana, experienced teachers were deployed in place of regular block level persons whereas in Karnataka, a dedicated post of Cluster Asst. Educational Officer was introduced[10]. This variation in staffing patterns not only affects the smooth functioning, but also makes monitoring and evaluation of the process difficult, taking away all the accountability in the process.

Quality of training

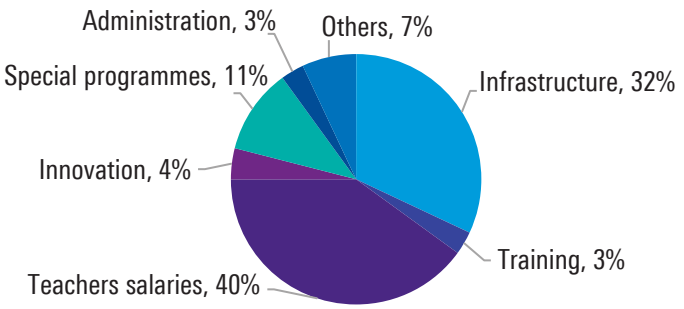
Teachers training programs are not well curated (same subject/topic is repeated in successive training programmes over the years). As mentioned earlier, here are several agencies providing training leading to a lack of cohesive training. This, further, degrades the quality of the training. In most cases, trainings are carried out independent of any needs assessment, this standardized training or one size fits all approach may not be relevant for every teacher.

Further, ICT has become essential for teacher training in most of the developed countries. The ICT adoption would aid in improving student's access to world-class content, capacity of teachers to meet differing abilities, interests and learning styles of individual students, and design of comprehensive assessments. However, in India, use of ICT is still rare in any form of teacher training.

Inadequate fund allocation for teacher training

A recent study conducted by The Centre for Budget and Governance Accountability (CBGA) and Child Right and You (CRY) with 10 Indian states reveals that the share of teacher training budget is actually less than 1 per cent for all of the 10 states participated in the study. While India has a low share of expenditure on teachers' training, the corresponding figure for the U.S.A. is ~ 3.4 per cent (as per 2016-17 data). Apart from minimal allocation, timely release of funds and underutilization of funds are some other challenges.

Component wise expenditure under SSA



Source: CBGA Report on Sarva Sikha Abhiyan (SSA), 2011

4. Systems

Systems can be defined as procedures or institutional arrangements for selecting, incentivising, and monitoring teachers.

Selecting teachers

Entry requirements for the teaching profession are an indication to the status assigned to it as a profession. In some countries, teaching is regarded as a less aspirational career and more as a second choice. While countries such as Finland, Singapore, and South Korea are able to recruit almost all of their teachers from the top one-third of the academic segment, this is not the case in India[11].
It is imperative to attract and recruit the best talent in the first place, hence, teacher selection is crucial in ensuring the creation of a critical mass of people that will lubricate a change in the classroom. However, there exist multiple issues with the teacher selection process in the country as discussed below:

Inability to meet standard qualifications leading to increased contractual hiring

In order to maintain a standard quality of teachers across the country, the National Council for Teacher Education

10. Role of Block & Cluster Resource Centers in Providing Academic Support to Elementary Schools, Education Consultants India, 2010
11. Investigating Challenges in Teacher Development, Central Square Foundation, 2016

(NCTE) mandated teachers entering the system to pass the Teacher Eligibility Test (TET) as a qualifying exam in addition to D.Ed. Or B.Ed. The fact that less than 10 per cent of teachers who appear for this exam, manage to clear it is clear evidence of the poor quality of teachers entering the school system. Even though there is great variation in TET scores across states and in number of teachers who manage to clear this exam, some states such as Maharashtra, the pass rate is only about 2 per cent. As a result of which, eight states have exempted teachers from the test further deteriorating the quality of teachers across the country.

In addition to exempting teachers, states have also resorted to contractual hiring to address the problem of low pass percentages, thereby leading to a dilution in teacher intake. Moreover, some states such as Madhya Pradesh and Bihar, have not even recruited primary school teachers in the past few years. However, there is not enough evidence to ensure greater quality in outcome through contractual teaching, even though some studies carried suggest that threat of insecure contract is associated with higher effort.

Insufficient and irrelevant pre-service training

Current teacher education institutions are isolated from universities, specifically state institutions that provide pre-service education. As a result of this stand-alone structure, there is a lack of collaboration, knowledge dissemination, and research culture among these institutions and the larger academic ecosystem. Moreover, the quality of these institutions is highly questionable given that they were given approvals to start merely on the existence of physical infrastructure. It was observed that countries that scored the highest on the Teacher Education and Development Study in Mathematics in 2007/08, such as Singapore and Taiwan Province of China, offer a balance between the training provided on subject knowledge as well as pedagogy[12].

Hence, there is a need to overhaul quality of teacher training institutes in the country to (i) equip teachers with pedagogic knowledge and professional repertoire to understand a child's psycho-social needs and to (ii) provide high quality training to raise subject knowledge where minimum entry requirements are not very high.

Incentivising teachers

The willingness of an individual to perform a set of functions is dependent on a set of intrinsic and extrinsic factors. Incentives for teachers can be monetary such as bonuses, salary increments, additional allowances, employment terms, etc. or non-monetarily linked such as career progression, recognition, professional development, etc. These incentives in many ways affect a teacher's decision of entering the teaching profession and choosing to continue in it.

In six studies published between 1990 and 2010, it was found that teacher salaries were directly linked to learning outcomes[13]. Furthermore, in 39 countries participating in PISA and TIMSS between 1995 and 2005, it was observed that a 15 per cent increase in teacher pay increased student performance between 6 to 8 per cent[14]. Even results of a randomised teacher incentives programme in Kenya found that in order to raise student test scores, teachers raised effort by offering more test-preparation sessions in attraction of a financial bonus[15]. However, it was found that the results of these financial incentives were short lived and raised the test scores of those students whose teachers were candidates for the bonus. Once the programmes was discontinued, it was found that the learning gains disappeared. Hence, monetary benefits in addition to salaries play a big role in stimulating teacher efficacy.

Evidence based promotion in Ghana

Ghana has placed emphasis on promoting teachers on the basis of evidence that exemplifies improvement of their instructional practice. This is a step towards augmenting the social status of teachers and promoting them based on their competency rather than on the number of years of experience.

A common incentive for teachers is promotion to become a 'principal teacher' which requires effort in terms of mentorship and knowledge sharing with other teachers which improves in-class teaching. In Ghana, in order to apply for the position, a teacher has to submit portfolios evidencing their work.

Another noteworthy example for soft incentives in Ghana is linking in-servicing training to career advancement, whereby upward movement in the hierarchy is based on evidence of demonstration of improvement in quality of education levels, along with management and leadership proficiency.

Source: Ghana Ministry of Education (2012a).

12. Teaching and Learning: Achieving Quality for All, UNESCO, 2014
13. School resources and educational outcomes in developing countries: a review of the literature from 1990 to 2010, Glewwe et al., 2011
14. Teacher's pay and Pupil's performance, Dolton and Marcenaro-Gutierrez, 2011
15. Teacher Incentives, Paul Glewwe, Nauman Ilias, and Michael Kremer, Poverty Action Lab, 2010

The Seventh Pay Commission specifies the salary structure and corresponding allowances for teachers employed in government schools. There are three main reasons for which a government job is considered as a lucrative career option – (i) unparalleled job security (ii) number of holidays (iii) dearness allowance. Many private schools also follow similar salary structures with the added difference of increased probation periods. However, these salary structures are incentives for an individual to take up teaching professionally but not necessarily incentives for the individual to become a good teacher. These benefits may help to increase the pool of applicants but not to improve effectives of existing teachers. Thus, in countries such as India, it is important that incremental monetary benefits are adequately addressed so as to meet basic needs, since teachers often resort to other jobs such as private tuitions, which diverts their time and priorities. The design of these benefits will have to be contextualised to the education landscape and other socio-economic factors in the country for them to be effective[16].

In addition to monetary benefits, current incentive structures in the country lack any long-term benefits, do not reward collective bonuses, and fail to combat teacher absenteeism. Research has confirmed that incentives, which drive intrinsic motivation factors such as recognition and rewards, principal track or ownership of a resource track, will have long-term benefits by enhancing a teacher's willingness to perform. This warrants the need to develop a career ladder for teachers with performance criteria linked to pay rise, bonus, and promotion to civil service rank as a means to retain teachers. Lastly, it is noted that collective bonuses or rewards to schools such as in the comparison of some schools in Brazil and Mexico points towards more encouraging results than incentives provided individually to teachers.

Monitoring and assessing teachers

The quality of teaching needs to be defined, assessed, and monitored if we are to improve outcome levels. There is evidence to demonstrate that investment in better monitoring mechanisms can ensue school functioning by assisting in informed decision making for resource allocation, distributing teacher work-load, and improving stakeholder-accountability. Similarly, monitoring and assessing quality of teacher effectiveness can provide valuable insight to school administrators about how reasonably are teachers performing and areas in which they require support. In spite of that, the current monitoring and evaluation system within the country faces some pitfalls as outlined below:

Absence of output based monitoring

The Quality Council of India has established a monitoring process with the objective of checking the compliance status of schools and their academic and non-academic performance against ten set parameters. Some of these parameters include school routine activities, school health and hygiene, co-curricular activities, school teaching-learning process and safety and vigilance measures. There is much lesser emphasis on what happens inside the classrooms let alone on a child's learning outcomes. A more balanced approach to teacher monitoring and assessment would be a combination of both, the act of teaching and the results of teaching.

Shortfall of resources in middle-management

Block and cluster resource coordinators play a huge role in quality improvement in public schools. As explained earlier, they are the authorities who look after monitoring, be it in terms of providing academic resources, on-site mentoring or providing in-service training to teachers. However, despite the significant role assumed by them, recruitment of middle management officers has not kept pace with increase in number of teachers[17]. As a result, their efforts, which ought to have been channelized for better monitoring are presently unsatisfactory.

Lack of a robust monitoring mechanism

Presently, monitoring and assessment of teachers is carried out via an Annual Confidential Report filled by the school principal and through school visits carried out by resource coordinators. However, this system is not very effective given that these coordinators are at times teachers themselves and that principals are unable to justify or elaborate on the grade that assign. Moreover, the danger of stakeholder bias or favouritism to creep into this system is extremely high, thus defeating the very purpose of its formation.

16. How effective are financial incentives for teachers, Michigan State University, USA, IZA World of Labor, 2015
17. Strengthening the Middle-Level Management of Education in India, Monil Singhal and Avantika Dhingra, Oct 2016


ABC

Our recommendations

Integrate teacher training with performance management structure

Teachers respond to direct pay linkages, but, these may tend to yield only short-term benefits, leave out poor-performing students in the class, and lead to competition among teachers hindering collaboration. Non-monetary incentives such as career advancement and professional development tend to enhance motivation intrinsically. They also affect the practice and attitude towards teaching and in turn impact the quality of teaching and learning in the classroom.

Teachers in the classrooms need to be positively incentivized for undertaking training and professional development, till their importance is innately realized. First, access to enough opportunities and programmes on subject matter mastery, pedagogy, adoption of tools and technology is paramount. Second, it is important that there exist some parameters to link teachers appraisal system with the training and overall professional development. This is evidenced in the study on a school transformation programme carried out by the Government of Haryana which instituted a new performance appraisal system for 100,000 teachers, integrating teachers training. As a result, in classes I through VIII, students have seen an improvement of three to six per cent in learning outcomes[1].

Even, European Union Countries have also developed a concept of Continuous Professional Development of teachers (CPD), where the teachers are trained and supported by peer-mentor network. The educational staff is classified into appropriate levels and each standards for each level is linked to remuneration. These standards exist for headmasters as well in order to enhance educational outcomes for underperforming schools.

Specifically for teachers in India, progression is a factor of years of experience. It is necessary that among other factors that attract and retain best talent such as competent salary, bonus or financial incentives, rewards and recognition, the need for self-efficacy and acceptance of the idea of meritocracy by a teacher is realised. Institutionalizing an integrated system will thus have a three dimensional impact by attracting better candidates by increasing the aspirational value of the teaching profession, providing adequate support to meet timely training needs for acquiring knowledge and skills, and motivating teachers to perform their classroom duties in the most effective manner.

Design an effective monitoring mechanism

Any system to measure teacher effectiveness has to be free from any form of stakeholder bias and instead be based on actual performance defined by measurable parameters. This can be achieved in two ways – (i) building an external network of monitoring troopers/resources (ii) designing competency benchmarks for teacher performance.

First, each school must include well-defined output based parameters in their school development plans and periodically monitor progress against it. Second, this monitoring should be assigned to an external task force, who has a completely balanced opinion. For example, capacity of school management committees can be developed for this purpose or schools should recruit external audit instructors to dedicatedly monitor teaching-

1. Transforming Education on a Massive Scale, Boston Consulting Group, 2017

learning process. Third, in addition to developing external monitoring resources, governments and hence schools need to define teacher competency benchmarks against which teacher's performance will be assessed.

A similar practice is followed by the corporate sector in the form of defining Key Result Areas (KRAs) and corresponding performance goals against each KRA for all their employees. The teachers should be made aware of these benchmarks at the beginning of each session and their progress should also be both reviewed and communicated to them periodically. This regular feedback will prompt teachers take corrective action to improve their effectiveness thereby positively impacting their role in the classroom.

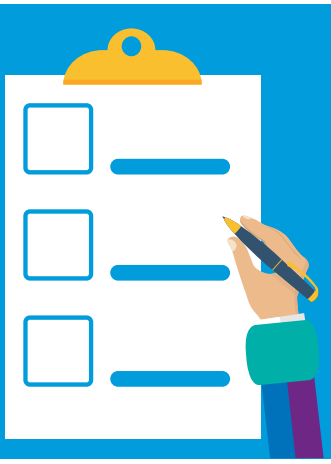
Encouraging use of technology by teachers

Progressing towards the Fourth Industrial Revolution, it is undeniable that technology will play a central role in nearly all aspects of our lives. The potential of technology is vital in the context of public education in India in order to enhance quality and access for one of the most populous countries. Making technology affordable for those who have so far been unable to benefit from these advancements, will be a leap in the right direction.

Hence, enabling a teacher to integrate technology within the classroom i.e. into the everyday teaching process is crucial. In addition to providing hardware and digital content, appropriate handholding is required to support teachers since there is no such training at the beginning of their tenure. More so, given, the novelty, the variety, and the plethora of content available, it might be overwhelming for the teacher to use these tech-tools effectively in the classroom, minus any formal training.

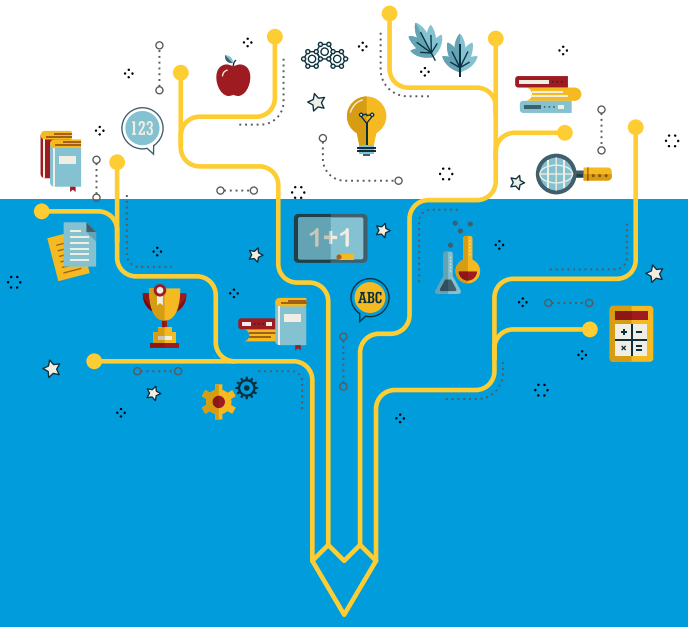
Post coaching teachers to deploy technology, one of the foremost uses in which teachers can leverage the power of technology is to design and implement real-time assessments. This can assist teachers to determine the teaching level in the classroom and provide customized support to students outside classroom, whenever necessary. It has now become fairly convenient and quick to assess students with the help of several low cost and effective tech-enabled assessment options.

Glossary



GER	Gross Enrolment Ratio
SSA	Sarva Shiksha Abhiyan
RTE	Right to Education
PTR	Pupil Teacher Ratio
GDP	Gross Domestic Product
NCERT	National Council of Educational Research and Training
ICT	Information and Communications Technology
TLM	Teaching Learning Materials
CTE	Colleges of Teacher Education
IASE	Institutes of Advanced Studies in Education
DIET	District Institutes of Education and Training
BRC	Block Resource Centres
CRC	Cluster Resource Centres

IIMC	Indian Institute of Management Calcutta
EdCIL	Educational Consultants India
CBGA	Centre for Budget and Governance Accountability
CRY	Child Right and You
NCTE	National Council for Teacher Education
TET	Teacher Eligibility Test
D.Ed	Diploma in Education
B.Ed.	Bachelor of Education
PISA	Programme for International Student Assessment
TIMSS	Trends in International Mathematics and Science Study
CPD	Continuous Professional Development
KRA	Key Result Areas



Acknowledgement

We would also like to acknowledge the core team from KPMG in India who worked extensively in preparation of this compendium:

Anupriya Rajput

Ashish Maheshwari

Madhavan Vilvarayanallur

Mayank Lodha

Narayanan Ramaswamy

Poornima Kharbanda

Priyanka Agarwal

Shruti Kirti Sharma

Sneha Elizabeth Joseph

Subadra Kalyanaraman