

QUALITY EDUCATION STUDY





From the Authors:

The Quality Education Study would not have been possible without the help and support of a large number of people.

We would like to specifically thank the School Principals for giving permissions to freely conduct the study in the schools for classes 4, 6 and 8.

We would also like to acknowledge the support and guidance of experts who helped in finalisation of the instruments and various aspects of the study.

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Quality Education Study (QES) aims to find answers to what constitutes “Quality education”. This study has been conceptualized and managed jointly by the Wipro and Educational Initiatives (EI) and the execution was carried out by EI. This was planned as a multi-year study to expand the meaning of ‘quality’ in education to include educational outcomes beyond student performance in subjects and study the attributes of quality learning environments. Although myriad views exist on what constitutes Quality education, majority of them relate it to be a reflection of the scholastic, co-scholastic and affective (specifically values and attitude) outcomes. Quality education is often closely linked with what experts refer to as, first, quality learning environments and second, holistic development of students (UNESCO, 2002).

This report covers the findings of year I – based on the large scale study of the scholastic, co-scholastic and affective outcomes and the different aspects of the learning environments found in India’s ‘top’ schools (identified through a survey of popular and expert opinion).

Salient Features of the Study:

Feature	Details
Expert Panel	Experts included professors from premier research institutions in India and USA, educationists from different NGOs working hands on in the field of education, academic and pedagogy experts, child psychologists and school principals.
Coverage	Overall, about 23,000 students, 790 teachers and 54 Principals from 89 schools participated in the study including 6 schools recommended by experts as schools providing different learning environments.
Background Questionnaires	Three different background questionnaires – one each for student, teacher and school principal were developed based on detailed secondary research.
Questions to Understand Students’ Values and Attitudes	A section to gather information on students’ perception and their attitude towards various social issues was also included.
Focus Group Discussions	A sub sample of 16 schools was selected for further collection of qualitative information through Focus group discussions (FGD). In these schools, FGDs were carried out with students of classes 4, 6 and 8 as well as teachers handling these classes.
Principal Interviews	The Principals in the sub sample of 16 schools were also interviewed to gather their views on education, their own school, teachers and other staff.
Specially Assembled Test Paper	The test consisted of questions carefully selected from a pool of ASSET items which have already been extensively tested with thousands of students. These questions checked if students are learning with understanding and are able to carry out higher order cognitive tasks. e.g., critical thinking. Few questions were also selected from international studies such as ‘Trends in Mathematics and Science Study’ (TIMSS), ‘Progress in Reading Literacy Study’ (PIRLS) and national studies by EI such as ‘Student Learning in Metros’ (SLIM) Study.
A Secondary Study	A ‘Secondary study’ to track progress in student learning was also carried out with some classrooms (sections) in the participating schools.
A Writing Task	An essay writing task was included in the secondary survey to reveal insights about the writing competencies of students in these top schools.
Completely Invigilated Tests	All the tests were invigilated by EI trained representatives
Analysis	Different types of advanced analysis were carried out on the collected data to extract patterns related to different aspects of the study.

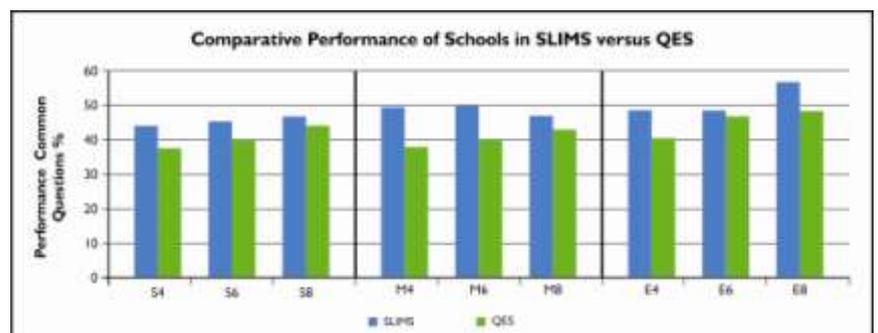
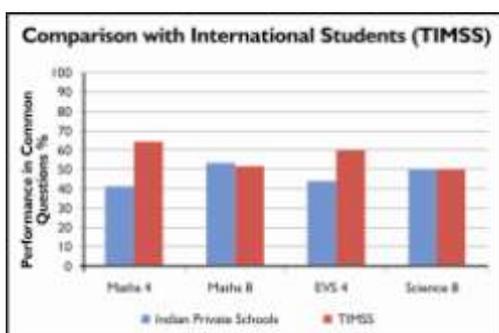
Key Messages Emerging from the Study:

1. Students in the 'Top schools' of our country exhibit rote learning. Performance of class 4 found to be below international average. Students seem to perform on par with international average in class 8, mainly due to their higher achievement in procedural questions (i.e., questions that require straightforward use of techniques or learnt procedures to arrive at the answers). Misconceptions acquired in lower classes continue in higher classes without any correction in their learning. Performance of top schools here means the number of students who give the correct answer to a question.
2. Students exhibited diverse thinking on questions on gender equality, acceptance of cultural and religious diversity, civic, citizenship and ecological responsibilities. Some of them indicate a bias which might over time grow into prejudices. It is possible that children are not getting exposed to different perspectives on these issues and thus that their thinking is not well-informed.
3. Different aspects of learning environments such as Principal's instructional leadership (leadership and support to teachers in academic areas), teacher beliefs in constructivist teaching learning practices, Principals' feelings of self efficacy are associated with better student achievement. Classrooms where teachers and principals do not believe in physical punishment, where students feel involved in the classroom practices and believe that their teachers' treat everyone equally also seem to be linked to greater student performance.
4. A majority of Principals think that co-scholastic areas are relevant for building students' self-confidence, self-control, sportsmanship, solidarity, teamwork, competitiveness and health. Data reflects that there is no major emphasis in the school curriculum on these areas. Among co-scholastic areas, sports, art and craft are given higher emphasis than music, dance drama and debates.
5. A few background factors - such as students spending at least 60 minutes each day reading material other than textbooks, students being able to read as well as do their homework independently, being taught by maths teachers with a masters degree in education, students being able to share their school problems with their parents - are associated with greater student achievement.

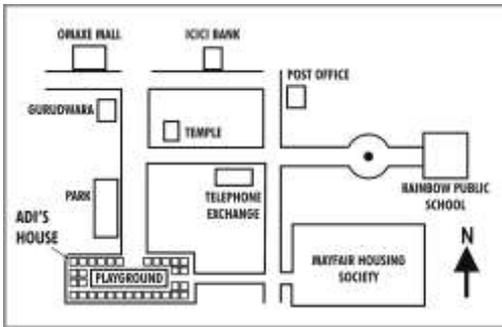
MAIN FINDINGS – STUDENT OUTCOMES

STUDENT PERFORMANCE IN ENGLISH, MATHS, SCIENCE AND SOCIAL STUDIES

1. **Performance is lower when compared to International standards:** Students in 'top' schools of India performed lower than the international average on questions used from studies such as 'Trends in International Maths and Science Study' (TIMSS) and 'Progress in Reading Literacy Study' (PIRLS) at class 4 level, while they performed on par at class 8 level. The improvement in class 8 level was due to the higher performance observed on procedural questions.
2. **Drop in learning levels from a previous (SLIMS 2006 –India Today cover story) study in 2006:** In all the papers tested and on common questions from the previous SLIMS study, students performed lower in the Quality Education Study, and the fall was higher in Maths 4, Maths 6, and English 8. The SLIMS study (carried out by EI and Wipro in 2006) assessed students in India's top schools for their conceptual understanding and found that our top schools don't promote conceptual learning in students. QES results show that there has been a further drop from the already unsatisfactory levels of 2006.



Adi goes to Rainbow Public School, which is near his house. Given below is a map which shows both – his house and his school. Look at it carefully to answer the question.

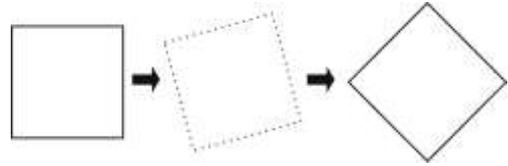


While going to school, Adi passes by the temple every day. In which direction is the temple located, with reference to Adi's house?

- A. North B. North East C. North West D. West

Sample Question: Only 30% of students could answer this question correctly (option B). 23% of students selected the wrong option A. Students probably think that any place which is located above in a map is located north. 17% of students selected the wrong option C. These students probably got confused between northwest and northeast. 12% of students chose the wrong option D. These students probably do not have clear idea about cardinal and intermediate directions.

Afzal has made a square on his computer screen. He now turns the shape as shown.



What is the change in the shape?

- A. The square changes into some other shape and its side lengths also change.
 B. The square changes into some other shape but its side lengths don't change.
 C. The figure remains a square, but its side lengths change.
 D. The figure remains a square, and there is no change in its side lengths.

Sample Question: Students seem to identify shapes based on visual images that they have been familiar with and not by their properties. They seem to have a misconception that by changing the orientation (rotating) of a shape, its dimensions like length would also change. It is observed that the percentage of students choosing the correct answer D is increasing as we move to the higher classes (16%, 32%, 49% in classes 4, 6 and 8). However it is important to note that the extent of the students choosing option B (the most common wrong answer) is not decreasing much (47%, 49%, 42% in classes 4, 6 and 8 respectively).

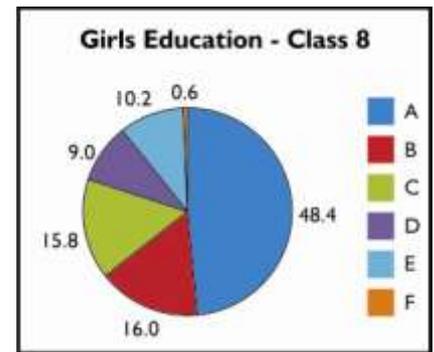
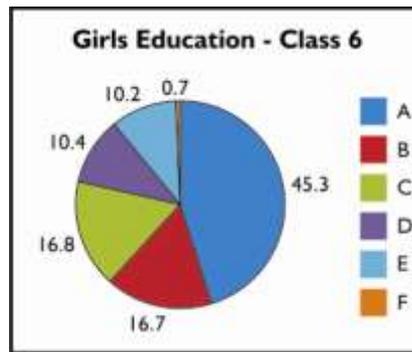
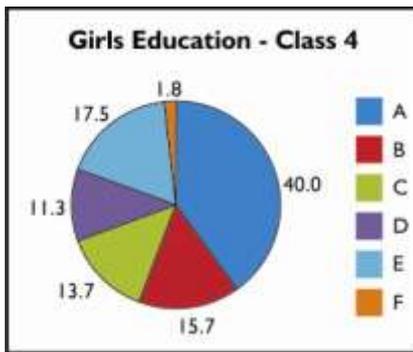
- 3. Significant differences in schools affiliated to different boards and in different cities:** The findings from board-wise comparison reveals that schools from Council for the Indian School Certificate Examinations (CISCE) and Central Board of Secondary Education (CBSE) performed among the top 2 and the differences with other boards were statistically significant. CISCE also performed significantly better than CBSE. The comparison of scores reveals that students from Kolkata and Delhi performed significantly better than Mumbai, Chennai and Bangalore. Mumbai performed at par with overall average of these 5 metros. Bangalore performed significantly lower than other metro cities. Kolkata had a large number of ICSE schools while Delhi had mostly CBSE schools which could be the reason for their higher performance.
- 4. Students exhibit rote learning and perform comparatively better in questions that are procedural or do not involve deeper understanding or application of concepts.**
- 5. Practical competencies such as map reading, using good language while writing, measurement, general awareness of well known facts, etc are not developed well.**
- 6. Students seem to harbour a number of misconceptions in the different subjects. As students move to higher classes, although the overall performance improves, the number of students holding on to same misconception continues, which indicates that if a student develops a misconception in a lower class, then it is more likely to continue in higher classes too without getting corrected.**
- 7. Boys were seen to perform better than girls in Maths and Science at class 8 level, while no such significant differences were found in other classes or subjects such as English and Social Studies.**

Class 4, 6 and 8

Amrita is a ten-year-old girl. Her mother works as a maid and her father is a farm labourer. Amrita has two sisters and one brother. They are all younger than her. Her parents say that she doesn't need to go to school because she will marry and leave the family when she becomes an adult.

What do you think about this?

- A. All girls must go to school, even if the family is poor.
- B. It's better if she stays at home and takes care of the younger children.
- C. If they are poor and they can send only one child to school, they should send the boy.
- D. Girls don't help their parents after they are married, so they don't need to go to school.



A-D: Answer Options, E: Not Attempted, F: Invalid Entries

STUDENTS' ATTITUDES TOWARD GENDER EQUALITY, DIVERSITY AND SENSITIVITY

1. **Gender Equality:** About 40-43% of students in classes 4, 6 and 8 felt that education for a girl is not as important as responsibility towards the family, if a choice has to be made between a boy or girl child in providing education, boys are to be preferred over girls. Some of them also felt that in the long run, educating a girl is a waste of resources. While 35% of class 4 students and 47% of class 8 students felt that both boys and girls are equally capable, about 15-20% of students in both classes believe that abilities are determined by gender. About 15% of class 8 students believe that females are more likely to be burdensome to their parents. **The results indicate the deep rooted bias against the girl child even in students from families which probably belong to the educated and higher socio economic strata of the society.**
2. **Acceptance of Diversity:** Nearly half the students surveyed believed that people come closer to each other due to mutual respect and understanding, and not due to religion. However, the other half had preconceived beliefs about people from other religions and that religious differences matter and need to be defended by violence if necessary. While 29% of students believe that Indians can live and work freely in any state of India, **nearly 60% students showed less acceptance towards immigrants** from other states as they felt that immigrants have to conform to the state's traditions, they take away jobs from natives of the state and also are a source of communal disagreements.
3. **Sensitivity towards Others:** **A large majority (70-80%) of students across different classes think of differently abled people as either burdensome, unhappy or not able to do well in studies.** However acceptance of differently-abled peers as capable people is slightly higher among older students (21.0% in class 4 to 29.0% in class 8). **60% of students show lesser sensitivity towards HIV affected people and a lack of awareness about the nature of HIV. This could be because the awareness creation efforts are not effectively reaching out to the children.**

STUDENTS' AWARENESS AND ATTITUDES TOWARD CIVIC/CITIZENSHIP ISSUES

4. Students in class 4 seem to have a stronger sense of civic responsibility than students of class 8 with regard to disposal of garbage. **Older students seem to have less personal responsibility and repeat undesirable practices if they see everybody's doing it, or if there is extra work involved in doing the desirable thing.** A large majority of 67% of students think that it is ok not to consider others convenience if done only once in a while is or if they do not complain or one is clear that laws are not being broken. About 45% of students in classes 4 to 8, generally show an extremely positive attitude of trust towards the police and believes that police will try their best to help people. **Nearly 20% of students think that it is ok to bend traffic rules in an emergency or as long as there is no personal harm. Nearly 20% of students also would vote based on their community affiliation.**

STUDENTS' AWARENESS AND ATTITUDES TOWARD ECOLOGICAL ISSUES

5. **19-23% of students at all three class levels think that ecological/environmental issues are the responsibility of a higher institution e.g. government,** while 32-44% of students at all three class levels understand that personal use can make a difference to the environment.

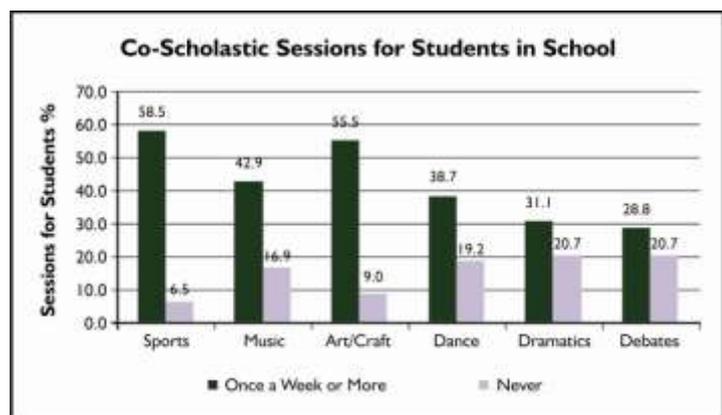
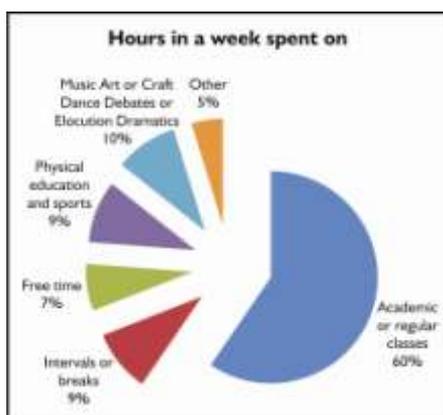
STUDENTS' VALUES AND INTERPERSONAL SKILLS

6. **30% of students said that they**
- **did not think how their actions would affect others,**
 - **wanted to have the last word in an argument,**
 - **felt uncomfortable if people disagreed with them, and**
 - **were aggressive in arguments.**

CO-SCHOLASTIC CURRICULUM

7. **A large number of Principals (more than 70%) say that co-scholastic areas is definitely very relevant to curriculum and for building students' self-confidence, self-control, sportsmanship, solidarity, teamwork, competitiveness, health, etc. However, less than half of who said so mentioned that their school places no major emphasis in curriculum for these areas, indicating that what is being said is not often practiced.** Schools on an average spend 9% and 10% each of time respectively on physical education/sports and co-scholastic activities like music/art/dance/elocution/dramatics. About 60% of class time is spent on learning academic subjects.

Around 40-60% of students reported having sessions for sports, art/craft and music once a week or more. Almost all the schools tested, rated themselves as good or excellent (*average scale score of 4 or above*) in the quality of the services (instrument/ material, room/auditorium, and availability of instructor) in the co-scholastic areas. Dance, sport, debates and art had slightly higher facilities (*such as equipment/material, room/auditorium and instructor*) than dramatics or music.



MAIN FINDINGS – LEARNING ENVIRONMENTS

LEADERSHIP AND MANAGEMENT STYLES

1. **Decision Making: Principals are the main decision makers on the courses offered, student disciplinary policies, assessment policies, student admissions and teacher recruitment in these schools.** The management controls and mainly decides on the school budgets, its allocations, teacher salaries, increments and teacher recruitments. The teachers decide mostly on the textbook and course content.

Locus of Control – Decision Making	School Management	Principal	Teachers	Central Authority
CURRICULUM AND CONTENTS				
Choosing which textbooks are to be used.	-	◆	●	▣
Determining the course content.	-	◆	●	▣
Deciding which courses are to be offered.	◆	●	▣	-
STUDENT POLICIES				
Establishing student disciplinary policies.	-	●	◆	-
Establishing student assessment policies.	-	●	◆	-
Approving students for admission to the school.	◆	●	▣	-
BUDGET				
Formulating the school budget.	●	◆	-	-
Deciding on budget allocations within the school.	●	◆	-	-
TEACHER POLICIES				
Selecting teachers for hire.	●	●	-	-
Dismissal of teachers.	●	◆	-	-
Establishing teachers' starting salaries.	●	◆	-	-
Determining teachers' salary increases.	●	◆	-	-

● Main decision maker

◆ Decides in consultation with main decision maker

▣ Contributes to decisions

Central Authority refers to a school board or Ministry of education.

2. **Instructional and Administrative Leadership:** QES looked into the different styles of leadership such as instructional leadership (*Instructional leadership included framing of school goals, communicating school goals, coordinating the curriculum, supervision of instruction, monitoring school progress and promoting professional development of teachers*) and administrative leadership (*Administrative leadership included accountability and upholding bureaucratic rules*) followed by the Principals of India's 'top' schools. **Principals who have a Master's degree in education were seen to embrace significantly higher instructional leadership style than their counterparts who had only a Bachelor's degree in education.** There was no such significant difference for administrative leadership style. For schools, where the **Principals were found to have a higher instructional leadership, performance of students was found to be higher** in Language (15.17 points), Maths (22.54 points) and Science (10.96 points).

Principals who have higher instructional leadership also tend to delegate and distribute leadership more and ensure involvement of staff who may have various viewpoints. Such Principals also support a committee structure for decision making and facilitate effective communication among the staff.

3. **Almost all Principals and Teachers reported being highly satisfied with their job and had perceptions of self-efficacy. Analysis of Principal and teacher responses showed that they felt that there is a high degree of trusting and collaborative climate among teachers and principal, there is distribution of leadership, and effective communication among stakeholders in their schools. However, majority of teachers (55%) felt that they are not involved in important policy decisions of their schools.**

TEACHER APPRAISAL, FEEDBACK AND MENTORING

4. **Nearly 25% of schools did not have teacher appraisal methods or carried them out only once every 2 or three years.** 75% of schools said that they did teacher appraisals once or more in a year. While Student Assessment, Teacher Peer Review and Principal observation were often the methods of teacher appraisal, using an external inspector was the least followed method of appraisal. **While 95.6% of Principals said that they gave feedback after appraisal, only 68.7% of Teachers said that they received feedback from appraisal.**

Both Principals and Teachers felt that the ability of the teacher to manage a classroom, their innovative teaching practices, teaching methodology and knowledge of a subject were more important aspects of a teacher appraisal. **Teachers felt that the appraisals were more useful in improving their subject knowledge and teaching methodology but less useful in improving student outcomes or their relationship with other teachers, While Principals also felt that the appraisals were useful in improving teachers' subject knowledge they also felt that these were less useful in improving teachers' teaching methodology.**

TEACHER AND PRINCIPAL BELIEFS ABOUT TEACHING - LEARNING

5. QES used items from the OECD conducted 'Teaching and Learning International Survey' (TALIS) for collecting information on teaching-learning beliefs, which can be understood as direct transmission beliefs and constructivist beliefs. It was found that **Principals in India's 'top' schools endorse higher constructivist beliefs than teachers. In contrast, teachers tend to believe that both constructivist and direct transmission beliefs are equally necessary in the teaching learning process.** However, Principal beliefs in constructivism actually were associated with lower performance in all subjects: Maths (-64.74 points), Language (-38.81 points), and Science (-35.74 points) while **Teacher beliefs in constructivism were associated with higher performance in Language (7.32 points) and Maths (7.74 points)** respectively.

"The direct transmission view of student learning implies that a teachers' role is to communicate knowledge in a clear and structured way, to explain correct solutions, to give students clear and resolvable problems, and to ensure calm and concentration in the classroom. In contrast, a constructivist view focuses on students, not as passive recipients but as active participants in the process of acquiring knowledge. Teachers holding this view emphasize facilitating student inquiry, prefer to give students the chance to develop solutions to problems on their own, and allow students to play active role in instructional activities" (OECD, 2009:92).

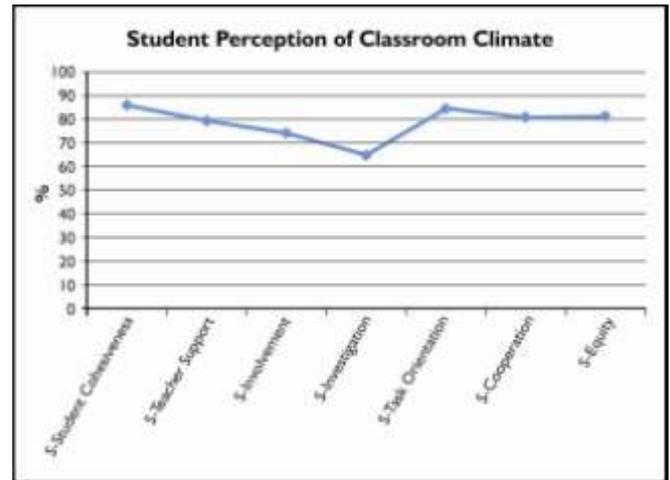
Teachers following constructivist approach also tend to be slightly more satisfied in their jobs and have higher perception of self efficacy. India's top schools when compared on an international scale showed that they are among the countries which have a lower constructivist and higher direct transmission beliefs.

TEACHER PRACTICES FOR INSTRUCTIONAL QUALITY

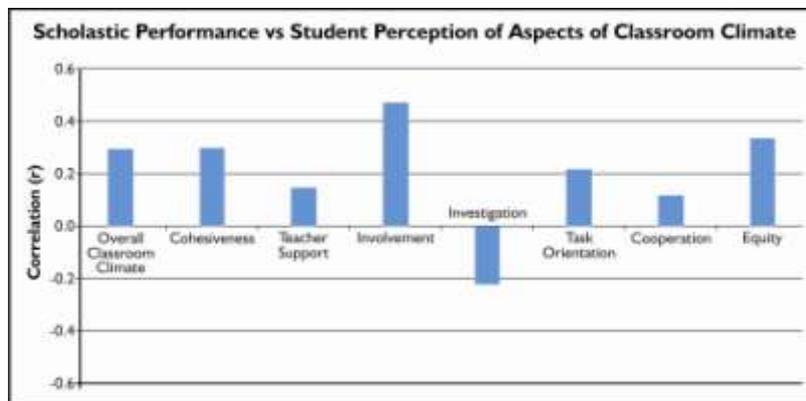
6. QES, using items from TALIS, found that **'structuring practices', such as stating learning goals, summarizing former lessons, homework review, checking the exercise book, and checking student understanding are the most frequently employed instructional practices across all the schools.** 'Student oriented practices' such as group work, student participation in planning class activities and their self evaluation, and 'enhanced activities' such as student participation in long and independent projects were less frequently used.

CLASSROOM CLIMATE

7. Results showed that majority of students perceived the classroom climate as positive in their schools. **Cohesiveness** (where students knew and like each other, are friendly) and **Task orientation** (where student pays attention in class, gets work done, knows the goals, purpose of being in class and what they need to accomplish) are the 2 most important characteristics of classrooms mentioned by students. In contrast, the aspect that was chosen the least by students to describe their classroom climate was 'investigation'.



Apparently, students do not carry out investigations or they are not asked about evidence or use of diagrams or graphs. It could also be related to the low level of 'enhanced activities' teachers practices in the classroom.



Student performance when correlated with student's perception of different aspects of their classroom climate, showed that all aspects such as **feelings of classroom being cohesive, having teacher support, being involved, oriented on tasks, having cooperation, and being treated equitably** were positively correlated with student performance. Student performance is most correlated

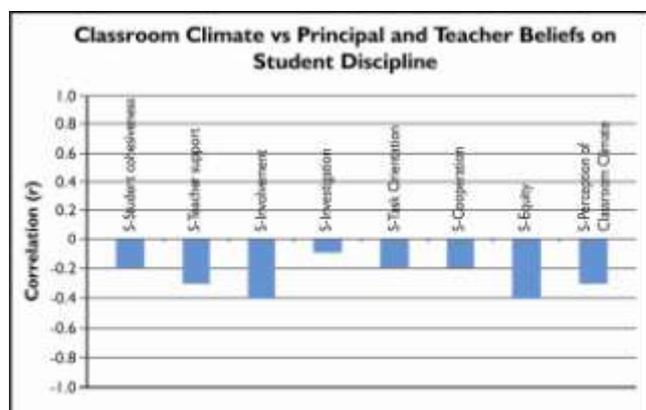
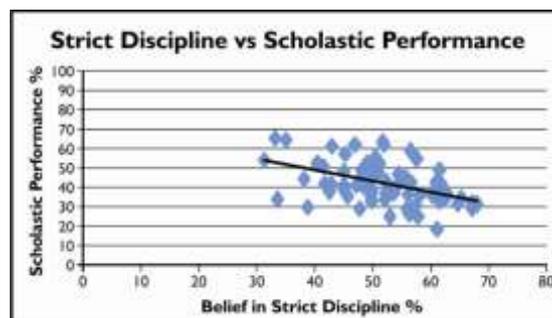
($r=0.5$) with the teachers asking questions and encouraging students to ask questions, considering students' ideas and suggestions and discussing the same in classroom. Similarly students performing well is correlated with ($r=0.3$) students feeling that that they are treated alike, and getting the same attention, opportunities, help and encouragement as other students get.

Better Classroom climate was also very positively correlated with students' values and interpersonal skills. Students who perceive a better classroom climate are more likely to say that they will not use stolen property, will report unidentified wallets to the police, will speak out for their beliefs, will feel bad about bullying others, will be kind to others, will feel sorry for injured people, will be protective towards weaker people, will be a friend to lonely people, will learn from mistakes, like to work in teams, have strategies for handling anger, not let feelings influence their behavior, have a sense of responsibility towards others and serve others, will think how their actions would affect others, and will feel comfortable even if people disagreed with them.

TEACHER AND PRINCIPAL BELIEFS ABOUT STUDENT DISCIPLINE

8. Principals (30%) and Teachers (40%) surveyed, believed that (i) strict discipline is necessary for proper teaching; (ii) the teacher's control over students is a must for discipline, (iii) there can be no discipline without fear of the teacher in students, (iv) students not paying attention to studies should be physically punished, (v) and undisciplined students in class should be physically punished.

A comparison of beliefs in student discipline showed that **the more the Principals and Teachers believe that strict discipline is important, the lower was their student performance.** This suggest that there can be no meaningful learning in a classroom that is filled with fear, as; in such classrooms the student may not be open to asking doubts, learning by discussion, etc.



The analysis of relationship between students' perception of classroom climate and principal, teacher beliefs on discipline revealed that **beliefs of strict discipline (such as inculcating fear and doling out physical punishment) are negatively correlated with student's perceptions of all aspects of a classroom climate.** Student's involvement in class and perceptions of equity had the highest negative correlation ($r=-0.4$ each). This suggest that **when teachers believe in strict discipline approach, then they do not ask questions in class or involve the student's ideas and suggestions; nor do they encourage students to ask questions and discuss ideas in the classroom. Students in such classrooms also feel that they are not treated alike, and do not get the same attention, opportunities, help and encouragement as other students get.**

Principal

- ⊕ 65% of Principals were females.
- ⊕ Average age of Principals was 55 years.
- ⊕ 85% of Principals had a masters degree
- ⊕ While 56% of female Principals had a M.Ed, only 44% of male Principals had a M.Ed
- ⊕ The average experience of a Principal as a teacher was 25 years, and as a Principal 13 years and in the specific school currently employed 8 years.
- ⊕ While 78% of Female Principals had attended training in the last 12 months only 44% of Male Principals had done so.

A snapshot of the different profiles

Teacher

- ⊕ **92% of Teachers were females.**
- ⊕ Average age of Teachers was 41 years.
- ⊕ 77% of Teachers were permanent teachers
- ⊕ 52% of Teachers had master's degree
- ⊕ 77% had a B.Ed
- ⊕ Average experience as a teacher was 12 years
- ⊕ While 34% of Teachers did not have any training in last 12 months, 35% of Teachers was trained on teaching methodologies.

Parent/Home

- ⊕ 63% of parents are graduates or above, 3.3% had less than class X qualification
- ⊕ 62% of mothers are home makers, 41% of fathers are business men
- ⊕ 16% of parents were in private sector while 13 % of were in government.
- ⊕ 75% of students get newspapers at home, 84% of students have computer 61% have Internet at home
- ⊕ 39% of students have more than 30 books while 5.6% do not have books available for reading at home
- ⊕ 55% have mothers help in homework while 43% have fathers help in homework.

ACADEMIC PRESSURE

9. QES also collected the information about what students believed about their learning capabilities, their actual performance and their perceptions of academic pressure. There is a moderate correlation about how students perceive their own scholastic abilities and the amount of pressure they feel ($r=0.4$). However, this is not reflected in actual performance. The correlation between academic pressure and performance is negative and low ($r = -0.3$). **When students express that they are under a lot of pressure to perform academically, they also seem to display a HIGHER degree of confidence in their scholastic abilities, but actually PERFORM LOWER in the scholastic assessment.**

STUDENTS, TEACHER AND PRINCIPAL BACKGROUND

10. A few background factors - such as **students spending at least 60 minutes each day reading material other than textbooks, students being able to read as well as do their homework independently, being taught by maths teachers with a masters degree in education, students being able to share their school problems with their parents - all of which are associated with greater student achievement.**

RECOMMENDATIONS

1. **Large scale awareness campaign among schools on notions of quality:** While there may be many notions on “what all constitutes quality education”, there is likely to be unanimous agreement in that schools should be places where students develop holistically and maximise their potential.

How well students understand what they learn will be important for building individuals who are capable thinkers. Schools are also places where many of the society notions on issues such as poverty, religious and cultural intolerance, biases against gender and differently-abled persons, disregard for civic and citizenship responsibilities and many others can be challenged and overturned by building awareness among students.

Large awareness campaigns involving schools and school heads should be rolled out where there is discussion and elaborating the understanding of what a good school and quality education means. Schools should be encouraged to use the outputs of the study that highlights the gaps in student learning and the misconceptions students have in different subject areas.

2. **Wide ranging debate on alternative models that question widely held beliefs on learning environments (structure, decision making, processes etc) and emphasises learning in co-scholastic areas:** Wide ranging debate is to be initiated on alternate models of education where schools could specialise in different areas of learning – academic or co-scholastic. This would enable the system to provide scope and stream students according to their interests. Many schools adopting such alternate models also tend to empower teachers more and have flatter structures and consultative decision making. Positive correlation of some such factors to student’s attitudes and values and performance indicates a need to bring these into debates on school quality improvement.
3. **Student interviews on different social and ecological issues:** There is a need to understand the reasons or thinking behind student responses to the different social, cultural, civic and ecological issues. Why could 25% of the children in class 6 say that they can include immigrants only if they conform? Or an even larger percentage feels that the need to educate girls is less than the need to educate boys? These answers can be obtained through a structured process of speaking to children *and carefully listening to their answers*. This process can be video-recorded and used in teacher training and research to help understand how students think and the reasons for their attitudes towards different social issues.

4. **Periodic benchmarking on all aspects of educational quality:** Regular and periodic study can focus improvement efforts on all dimensions of system quality related to learners and learning environments. While benchmarking, a holistic approach to student outcomes that looks into what students learn in academic areas, their attitudes and values, the approach and attainment in co-scholastic areas should also be looked into to give a complete profile of student education.
5. **Providing effective teacher support:** Understanding the learning gaps and misconceptions among students can provide an opportunity for teacher capacity building. Inputs regarding learning gaps and misconceptions can be built into an effective teacher training and support system to move the system towards better quality learning. Student interviews¹ and group discussions to understand student thinking on various concepts could be included in pre-service teacher training, and also as an activity that practising teachers could be encouraged to do. Practices which make a teacher more reflective and research-oriented in a classroom context could be analysed and considered.
6. **Studies to further unpack the notions of quality:** Definitions of quality must be open to change and evolve based on information, changing contexts, and new understandings of the nature of education's challenges. Studies that will explore quality in education and the role of different learning environments in providing quality will need to be undertaken at classroom and school level to further unpack the factors influencing quality.

¹ Why could 60% of the students in class 8 not identify an angle with the greatest degree measure? Why could students not know that all insects have 6 legs even at class 8 level? These answers can be obtained through a structured process of speaking to students and carefully listening to their answers. This process can be video-recorded and used in teacher training to help teachers understand how students think and what misconceptions they have. The skill of actually conducting these 'student interviews' trains teachers to listen to students - something that usually gets missed in the rush to 'complete the syllabus'.

Quality Education Study

