



Creya Learning

Preparing Our Children For Success

An assessment of what skills Indian children need to succeed in the 21st century

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Overview

This white paper discusses the issues confronting children in the Indian school system, and discusses possible solutions to enhance the learning and overall development of children. It introduces the paradigm of Experiential Education, which emphasizes the role of experience in human learning and development; and how children may develop the critical skills necessary in the 21st century via this paradigm.

The intended audience for this white paper is parents of school-going children, educators (teachers, school administrators and management), education experts and policy makers.

While the discussion of the lacunae in the current system is restricted to India, similar parallels may be drawn with traditional learning systems in active use in many countries across the globe.

Introduction: Origins of the Current Education System

We must...do our best to form a class who may be interpreters between us and the millions whom we govern, - a class of persons Indian in blood and colour, but English in tastes, in opinions, in morals and in intellect. To that class we may leave it to refine the vernacular dialects of the country, to enrich those dialects with terms of science borrowed from the Western nomenclature, and to render them by degrees fit vehicles for conveying knowledge to the great mass of the population.” – Minute by Thomas Babington Macaulay, 2nd February 1835”

With his now-famous Minute in the British Parliament, the Honourable T.B. Macaulay laid down the framework for what still continues to be the Indian system of education. This is a system that heavily borrows from the British education system of the mid-19th century, and that has been suitably distorted over the last 150 years to suit various local constraints.

Rote Learning, Lack of Practical Knowledge

Starting from primary education, the Indian education system rests on the pillars of :

- Acquisition of large amounts of information via learning by rote
- Little emphasis on practical experimentation of the theories or concepts being taught
- Limited exposure to industry: few opportunities for internships, shadowing professionals or exposure to career options
- A single teacher teaching to a large classroom via blackboards, and supporting text books: not the ideal setting to ask questions, explore alternatives or learn by experience
- Usage of old question papers, guides, crib-sheets and reworked notes to memorize answers and pass entrance examinations and gain entry in institutes for higher education.

The various drawbacks or lacunae in the system are exploited by a huge industry of after-school tutors, computer institutes, workshops and exam preparation centres that claim to teach what the schools do not; but usually end up fostering stifling classroom atmospheres of their own.

Stress, Emotional Turmoil Among Children

The “hothouse” atmosphere among K-12 educational institutions successfully stifles the



imagination of, and enthusiasm for learning among children. This leads to undue stress as children are pressured to perform well – even excel – in subjects in which they have no interest or aptitude. The high stress causes mental imbalances even among young children.

Unhappy children drag themselves (and their heavy school bags) to school to take down notes in “class work” books, and then regurgitate the same in “home work” books and exam papers. The emotional turmoil touches entire families as young people struggle to survive and “win” during their K-12 years.

This system has resulted in generations of youth who enter institutes of higher education armed with marks cards and certificates. They pass out of colleges and professional institutes with degrees but not with employable skills. Employers bemoan the lack of employable skills among the educated youth of the country. The situation is not any better in the so-called “sunshine” IT sector: a NASSCOM report states that “...only 25% of IT graduates in the country are readily employable”. For example, it is a glaring fact that despite India’s much-toasted success in IT, ITES, KPO, BPO and all the other “back-office”/clerical-oriented jobs, not many commercial software products or services have emerged in the global market from India – an indicator of the lack of original thought and innovation in our IT sector.

Children have to be educated, but they have also to be left to educate themselves. -Ernest Dimnet

Science and technology are not much different: although Indian media loves to tout the local origins of innovators, patent-holders or Nobel laureates hailing from the sub-continent, it is a fact that most of them won their laurels after extended periods of work and study in universities and laboratories abroad.

It is a sobering but true fact that whatever success Indians have achieved in research, industry and innovation have been despite the education system, not because of it.

The Changing Scenario

Looking forward, industry and the workplace are changing dramatically. Similar to the industrial revolution which ended a lot of occupations that involved repetitive tasks or tasks involving hauling large loads, the knowledge revolution that is underway is transforming the workplace of the 21st century. Some of the key changes that will occur or have already occurred are:

- Information is freely available in huge online databases. A

person who just knows facts does not have any value. An employee who can interpret and analyze information to make forecasts, create innovative products and services or plan better will be highly valued.



- Geographical distances have shrunk with the telecommunication revolution. An employee in India must communicate with supervisors, peers and team members across the globe. Soft skills such as superior oral and written communication, the ability to collaborate effectively with a diverse team and a project oriented approach to tasks will be paramount.
- The internet has exploded the notion of spending careers tethered to giant corporations. Online marketplaces, social networking sites and freelance sites have launched the careers of scores of entrepreneurs, freelance designers and innovators. A person's career need only be limited by their imagination and their willingness to work hard.

Gearing Up For the Future

India is not unique in this situation. Other countries, faced with similar challenges confronting their youth, have been debating solutions and methodologies for the way forward.

The first critical dimension in this discussion is the skill set that children of this age require to succeed. In the US, the National Association of Independent Schools (NAIS) formed a Committee of Schools for the Future, which distilled an "Essential Capacities for the 21st

century” list from current literature. Similarly, Tony Wagner of the Harvard Graduate School interviewed over 600 CEOs and asked them what qualities graduates will need to succeed in college, their careers and citizenship in the 21st century and created a similar inventory.

Here are the highlights of these capacities:

- Analytical and Creative Thinking and Problem solving
- Complex communication – oral and written
- Leadership and Teamwork
- Collaboration across networks

and leading by influence

-

Literacy (the ability to understand, use and apply digital technologies);
accessing and analyzing information

- Global Perspective
- Agility, Adaptability, Initiative

and Risk-taking; entrepreneurship

- Integrity and Ethical Decision-

making

- Curiosity and imagination.



“Do not train a child to learn by force or harshness; but direct them to it by what amuses their minds, so that you may be better able to discover with accuracy the peculiar bent of the genius of each.”
- Plato

intelligence of our children? Are we giving them enough emotional support, mentoring and encouragement that will give them the confidence to soar? Are we helping them become strong, capable leaders who can think “out of the box” and create great works of science, technology and art, and lead people and organizations successfully?

Back home in India, while we obsess over marks/medals gained in Olympiads, entrance exams and Abacus tournaments, the above points are worth pondering. Is our education system equipping our children to perform these tasks? A “no” is a frightening prospect for the future of our children: for their ability to survive, to compete and to succeed in the increasingly smaller global workplace of the 21st century.

The second dimension that needs to be discussed and debated here is the emotional one: as part of the educational ecosystem of our country, how are we nurturing the emotional

Bridging the Gap

What We Have, What We Need

Any solution requires an analysis of the way we currently live and work. Such an analysis shows us how strikingly technology is increasingly guiding the way we operate our day-to-day lives. The life of any typical Indian in any urban centre is startlingly different from the way it was even a decade ago. This is mainly because of technology:

- Mobile phones and SMS technologies have made communication simple across large distances.
- The internet has revolutionized the way we seek information, whether it is to access news, search for jobs or apply to schools.
- The usage of social media (more so by the younger generation) is increasingly making even email look stodgy and dull.
- Students of today are at ease using digital cameras, computers, mobile phones, the internet and other devices.

The technology trend is only set to accelerate over the coming years and decades. The children of today are truly the children of the digital age. The way they will live, work and learn will be very different from the way we did/do things.

Education is not the filling of a pail, but the lighting of a fire.

-William Butler Yeats



FACET	STUDENTS OF PREVIOUS GENERATIONS	STUDENTS OF THE DIGITAL AGE
Accessing information	Linear access via text books, notes dictated by teacher/ copied from peers, reference books in libraries	Random access via Google searches, searching particular websites/ journals/media outlets; asking peers/friends/co-workers in social networking sites
Primary mechanism for information dissemination	Text, supported by static graphics and line diagrams	Multi-media supported by text: images/graphics (sometimes with voice-overs), videos
Rewards	“This degree will help you gain a job later in life”	“I need the information necessary to help me finish my current task” – “Just-in-time” information access and analysis
World-view	Learning is a means to pass exams and acquire a good job. It happens only in schools and colleges.	Learning should be fun. It can happen anywhere, anytime. It should equip me with the skills I need to succeed.

TABLE: HOW STUDENTS OF THE DIGITAL AGE ARE DIFFERENT FROM PREVIOUS GENERATIONS

A perusal of the last column in the above table shows that Indian students are already there: many prefer to work in tandem with technology during their spare time and experience learning in new and exciting ways. However, while studying for school, they are forced to straightjacket themselves into the old paradigms because of our education system.

Reform of Board Curricula

Educators and education policy decision makers have recognized the problem. Efforts are underway to update board curricula, and reform the way students are taught and evaluated.

A case in point is the Central Board of Secondary Education (CBSE), which has introduced the Continuous and Comprehensive Evaluation (CCE) that performs formative and summative assessments of students throughout the year making the dreaded Class X board exam irrelevant. The CBSE has also updated the curriculum such that a student, who is say, seeking to excel in a language, must excel in areas like debate, role play, dramatics, presentation skills and essay writing to get good assessments. Just memorization of question/answer sets in said language will no longer help ace the exam.

However, the gap between what is taught and what is necessary is still huge, and is only growing, irrespective of the board. Here is a sample list of some of the topics that students passing out of schools ought to be taught:

- Digital Information Literacy
- Life and Leadership Skills
- Scientific temper
- Engineering thought process
- Design and innovation skills

None of these topics are being addressed by current curricula, or even in proposed updates.

“Education is the most powerful weapon which you can use to change the world.” - Nelson Mandela



For example, the difference is this: while schools are trumpeting the acquisition of state-of-the-art computer labs and teaching children the syntax and semantics of the latest programming language, none of them are equipping students with:

- How to architect innovative products/services
- How to write elegant and strong programs using design patterns
- How to communicate the innovative ideas and sell them to potential investors
- The intricacies of the intellectual rigor and scientific temper required to see the innovation through to the very end.

The difference painted by this example is stark: while the college with its state-of-the-art computer lab will create a programmer “clerk” who is syntactically perfect, training that incorporated the features listed above would create an innovator who would design and sell ideas in tomorrow’s marketplace.

Consider, also, a child who is good at art: drawing and painting are once-weekly subjects in most schools, and the child’s work would be displayed proudly by art teachers in the annual art exhibition. Beyond that it is up to the child, and the hapless parents to scour their town or city for resources in art education. There is no formal art education or mentoring available for budding artists in most schools.

The scenario is the same whether the subject is art, theatre, science experimentation, working the environment or others. Career paths such as Playwright, Oceanographer, Forest Ranger, Medical Researcher or Urban Planner are unknown to children struggling to complete their notes and memorize them to pass the next exam. Many, many children fall on the wayside in this blind struggle to get higher and higher marks and enter the portals of institutes of repute in Engineering and Medicine. These remain the favourite career choice for the students and parents alike.

The writing on the wall is clear: Together, we need to find complementary systems that will equip students with the skills they need for the 21st century, whose second decade we have already stepped into. The boards must continue on their progressive path of positive change. Schools and educational institutions must take the leap forward and think of innovative ways to improve their children's overall education and nurturing.

There are now solutions available to support the educational eco-system in this march towards the future.

One of the first learning companies to offer a comprehensive solution is "Creya Learning". Creya programs rely on proven research and curriculum, well anointed delivery systems to support schools' implementations and take proactive measures to deliver on the existing gaps.

Creya Learning offers Experiential Learning enhanced with technology: a rich suite of programs that will excite and enthuse the student of the digital age, and prepare them to thrive in the 21st century.

Creya has put the theories of experiential learning into action so that Indian children may not just survive, but thrive, as leaders, thinkers and doers of the 21st century.

A New Paradigm for the Digital Age

"For the things we have to learn before we can do them, we learn by doing them"

– Aristotle

Experiential Learning is learning from experience. The experience may be staged or left open. The dimensions of experiential learning are:

- Analysis
- Initiative
- Immersion

Learning happens by actively involving the learner in a concrete experience. The teacher is more of a coach, or mentor, who offers a supportive role in the environment, rather than a god-like figure standing on the podium and writing notes that should be copied.

When experiential learning is enhanced by technology, the experiences are visualized and communicated in better ways. The possibilities for collaboration and shared learning increase manifold.



Concept	Traditional/Academic Learning	Experiential Learning	Experiential Learning enhanced with technology
Newton's Laws of Motion	<ul style="list-style-type: none"> • Teach Newton's laws of motion on blackboard in Physics class. Supplement with problems that use the laws. • Mention the Newton and the apple story in passing in the English class • List Newton among the luminaries of the Renaissance, and mention his book "Principia.." in History class 	<ol style="list-style-type: none"> 1. Research Sir Isaac Newton and stage a play depicting a question/answer session with him. 2. Envisage a project that demonstrates any one of Newton's three laws of motion. 3. Verify the selected law of motion via your project and record your observations. 4. Discuss the Renaissance with "Newton" – the times, the mores, the literature and more. 	<p>All the features mention in the column to the left, plus:</p> <ol style="list-style-type: none"> 5. Record the interview with a camcorder. 6. Edit the recording and show it to your classmates on TV.

TABLE: SAMPLE LESSON PLANS IN DIFFERENT EDUCATIONAL PARADIGMS



Experiential Learning in Action

Creya Learning is a beyond-school program that equips students with 21st century survival and success skills. India's first full-suite 21st century learning services provider, Creya offers learning programs that complement regular schooling and that are a blend of the following streams:

- Science, Technology, Engineering and Math (STEM)
- Digital Media & Arts
- Life & leadership Skills

Creya programs are designed to be offered at/as

- 'Creya Learning Zones', our own independent centres open for students of any school
- 'In-school' programs at our your school campus along with regular classroom schedule
- 'Summer & Winter programs' usually held at off-city venues.

Creya partners with schools to set-up a "Creya Center of Excellence" inside the school premises. This partnership draws upon the strengths of the school in providing students with the foundational knowledge, while Creya provides students with knowledge of Literacies and Competencies that are focused on learning outcomes.

One way to understand how this partnership compliments the strength of schools and Creya is to think of how academic knowledge and skills, practical literacies, and broader competencies as forming a sphere comprised of layers (as shown above). Competencies, or "outer layer," often draw upon literacies; literacies always draw upon foundational or "core," knowledge and skills.

The program is personalized to the needs of the school and is offered as an integral part of the school curriculum. The "Creya Center of Excellence" in schools is also open during the weekends and holidays for the students to explore and engage in pet projects; and to work on challenges and team competitions.

Skills and Knowledge Work Together

Foundational Knowledge

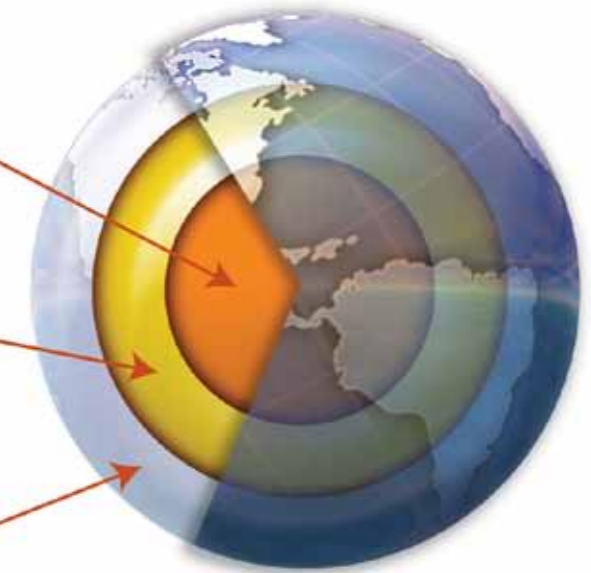
Academic knowledge and skills, math, reading and writing, science, civics, etc.

Literacies

Ability to apply academic knowledge and skills to deal with real world challenges, eg., numeracy

Competencies

Ability to call on skills, literacies and other capacities to be successful across many facets of life



A solid education today demands not only a strong foundation or "core" in content knowledge but also the ability to apply it to the real world, and both are essential to develop broader competencies like critical thinking and problem solving



Future Outlook

Enhancing regular school with experiential education systems is the way to go for Indian schoolchildren. Parents and schools are increasingly recognizing this fact. There is a need for change in learning – a need to move away from the rote learning and narrow straightjackets of yesterday towards a more open, experiential and collaborative method of education.

The increased awareness and openness of Indian parents and schools who wish to bring about positive change in the way children learn has led to the creation of Creya.

Creya Learning fills the gap between the need and the reality of education for 21st century success:

- Creya is the first and only comprehensive provider for all supplementary education needs covering STEM, Digital Media & Arts, Life and Leadership Skills – a complete 21st century skills framework
- Creya provides learning delivery ownership through a combination of curriculum, learning environments, trained coaches with the right set of projects adapted to the Indian K-12 segment.

We invite interested educators, parents, schools and institutes to partner with us on this exciting journey to equip our children to succeed in the 21st century.

Creya is the culmination of the increased awareness and openness among parents and school who wish to bring about positive change