

# How Innovative Education Can Transform India

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**Abstract – Education is the leading field which can form the future of the country as a whole. As education system creativity grows, India will be changed. In this report, we addressed the complexities of the existing education framework in India and of the role of organizations in disseminating education innovation in India. The conclusion was that the 21st century really is an era of cataclysmic transition and imagination that can only change the education system paradigm.**

**Keywords: Innovation, Education System, Transform, Student, Crisis**

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## INTRODUCTION

Today's archaic 19th Century model of rote-based learning, the 'chalk-and-talk' system, where the teacher talks endlessly and dictatorially and the student listens passively and submissively has discouraged questioning, discovery, experimentation and application in the school classroom.

We are the country that produced one of the greatest conceptual inventions known to humans: the zero. Singularly, it seems to have little, perhaps no value. But when placed behind another integer, the value and human impact created by the invention of zero is momentous. Phenomenal, isn't it?

This is the power of innovation. Innovation is not always an expensive or larger-than-life initiative; on the contrary, the essence of innovation lies in creating maximum value from a minimal investment of scarce resources. Sustainable and inclusive innovation depends on this. A combination of volatile and complex factors, including accelerated depletion of the world's natural resources, growing expectations, income gaps and the urgency of raising the living standards of millions of poor and deprived communities across the planet have placed a premium on the need for rapid, inclusive and effective innovation. Across the globe, but especially in large countries like India, scalable innovation has become a panacea for overcoming social and economic challenges. The desire to find a silver bullet to solve our problems must be balanced by the reality of sometimes slow and tortuous progress. What is

inescapable is that the road to progress in this century will hinge on humanity's success in unlocking the creative potential of millions of its inhabitants.

Innovative education that helps to foster a creative mindset from an early age can play a vital role in transforming many societies from low to high productivity, from poverty to prosperity from being consumers to being producers of ideas.

## CHALLENGES OF THE CURRENT EDUCATION SYSTEM IN INDIA

If "the child is the father (mother) of the man (woman)" then the process of transformation starts with a single child. Today's archaic 19th Century model of rote-based learning, the 'chalk-and-talk' system, where the teacher talks endlessly and dictatorially and the student listens passively and submissively has discouraged questioning, discovery, experimentation and application in the school classroom. Boredom, lack of involvement, low confidence and self-belief, and an obsessive fear of failure are the unfortunate results of this unimaginative factory-based model of education. Education today is a 100-metre race on steroids. Children join school as a question mark; they leave school as a full stop. Not surprisingly, downbeat attitudes acquired at an early age have carried into adulthood, resulting in a workforce that is, for the most part, bereft of the temper, desire and energy to create, invent and innovate.

In the era of 'Startup India', despite the exciting birth of a lot of new businesses, we have not witnessed an equivalent number of original or innovative ideas at scale from India. Reflecting perhaps years of uncreative education, an almost instinctive urge to copy ideas from outside, seen as a more predictable and dependable way of making money, has precluded hundreds of Indians from investing their time and energy in new and original ideas with a long-term, and possibly, uncertain return. Reversing this myopic "copying culture" requires faith in one's own ability to discover and create, as well as the willingness to invest time and effort to produce inventive ideas and solutions relevant for the Indian context. Passion-based creativity, doing something not solely because you want to make money but because you want to solve a significant problem, create something of great value or change or shift a paradigm is a rare commodity. And yet, as both business and social history has shown, it is the passionate creators, inventors and innovators who have opened innumerable doors of possibility and opportunity for the rest of us.

How then might we foster a culture of creativity and innovation that makes us want to "think in India?" For a start, we should overhaul our educational focus and philosophy. A sorry reality of today's education is that students find school and college uninteresting. "Why am I learning what I am learning?" and, "I don't remember anything I learned in school or college" are cheerless statements that one frequently hears in interactions with students. No wonder millions of children drop out from school forever keeping their innate creativity under lock and key. Attending school is just not that compelling or interesting.

In the Innovator's DNA, authors Dyer, Gregersen and Christensen, state that "Innovators treat the world as a question mark." They identify the five key characteristics common to great innovative entrepreneurs in Silicon Valley:

1. Questioning
2. Observation
3. Experimentation
4. Association, i.e. connecting of dots
5. Networking

Can these characteristics, present not only in entrepreneurs but in inventors, innovators and creative problem-solvers from all walks of life, be imbibed and learned? The answer is, yes if the education environment changes dramatically from a passive rote system to a learner-centric, active and creative one. New teaching-learning methods need to be introduced and instilled to trigger important shifts in thinking and behavior. These might include:

**Engaging a child from just saying "yes", to learning to ask "why?":** Children must be encouraged to be curious and ask innumerable whys and why nots. Can we recognize a child not only for the answers she or he gives in an exam but for the quality of questions that he or she asks?

**Teaching children not just to look, but to observe:** Keen observation of the environment has caused many breakthroughs in science and medicine and in the social and business worlds. Children must be taught and encouraged to observe deeply, to look beyond the obvious.

**Shifting from passive learning to hands-on experiential learning and exploration:** Hands-on practical experiments, which engage the child's senses of touch, feel, smell, sight and sound, are extremely effective in helping him to grasp, explain and retain otherwise difficult concepts. Shifting from being textbook-bound to being hands-on: In this era of easily accessible data, children are not given the chance or time to use their own minds or reason for themselves. Model-making workshops, audio-visual presentations, role-playing activities and exploring the physical world help to deliver the message of classroom lessons in a more interesting and effective manner.

**Shifting from fear to confidence:** By encouraging curiosity and creativity, we train children to become independent, thinking individuals who discover and solve problems on their own, thus nurturing their confidence and self-belief. Peer-to-peer teaching is a powerful way to spark and foster confidence among children. The good news is that none of the above requires an expensive school lab or a huge investment in infrastructure. Much of the aforementioned desired shifts in thinking and behaviour can be achieved through low-cost everyday materials. Indeed, the lack of resources is one of the greatest spurs to creativity. How much money do you need to observe and learn from nature, the source of many breakthroughs in science and technology? You are creative not because you have everything at your disposal but because you don't!

## CONTRIBUTING TO THE SOLVING OF THE EDUCATION CRISIS IN INDIA

Fortunately, and perhaps not too soon, India has started recognizing the importance of hands-on, experiential learning as a powerful method to encourage thinking and creative expression. The National Council of Educational Research and Training (NCERT) textbooks are oriented towards projects, hands-on and experiential learning and open-ended questions and answers. The challenge we face is not in knowing what we need to do, but in knowing how, and how quickly, we can do it. Experience suggests that the intrinsic power of engagement of active, hands-on methods of

learning can help to rapidly communicate and convert thousands of teachers and students to the new paradigm. Towards this end, many organizations are helping to create a unique, deeper and more meaningful educational experience — to spark curiosity, nurture creativity and instill confidence — for children and teachers. Innovations such as mobile science labs, lab on bikes, engaging night school village programmes and 'constructivist' hands-on, experiential teacher training programs, all have made huge contributions in nurturing innovation in education in India. To bring about a new national education consciousness such ideas and methods, which are rooted in curiosity and creativity, need to scale, spread and infuse their magic across millions of classrooms.

The Lab-On-A-Bike (LOB) in India is one such popular example. As the name suggests, the Lab-On-A-Bike initiative involves a bike that carries a set of 10 Lab-In-Boxes that have low-cost tools and equipment to conduct experiments that make science concepts come alive in the classroom. They engage both the teacher and the student in collaborative learning. While the LOB uses science as its language to engage and communicate its purpose is to get students to wonder, observe, question, think, feel, experiment and connect the dots – all the “characteristics” or skills that are essential to success as inventors, creators and problem-solvers. By seeing and doing, and proactively interacting with the teacher and her peers, the child learns her science concepts more comprehensively than she would from a boring chalk-and-talk lecture. Importantly, the indelible memory of a hands-on experience with the LOB helps her to retain this knowledge.

### **THE ROLE OF ORGANIZATIONS IN THE SPREADING OF INNOVATION IN THE EDUCATION STREAM IN INDIA**

Many of the challenges of spreading creative education to India's underprivileged children apply equally to hundreds of well-heeled urban schools, where a relentless focus on answer-based grades and a frenzied race among students to enter a university of choice has come at the cost of creative inquiry-based learning. With collective efforts, organizations including NGOs, foundations, corporations and government bodies can help reverse these negative trends by investing in new, experiential ways of learning that liberate students and teachers from the straitjacket of exam-focused, rote-based learning. Such organizations help to recognize, value and appreciate the work and achievements of innovators and drives more innovation across the social, economic and demographic spectrum.

### **CONCLUSION**

A country's future rests on the shoulders of its youth and children, quite specifically on how they are taught and engaged to think and act. If the 21st Century is truly the age of cataclysmic change and creativity then

nothing less than a paradigm shift in the education system will do. While technology increasingly will play a major role in disrupting legacy education models it will equally place heightened emphasis on human beings' capacity to create and innovate in the face of rapid change and complexity. This will require the resurgence and burnishing of human creativity and the skills that express it, namely questioning and curiosity, awareness, observation, discovery and experimentation, association, application and networking. By igniting these skills through active learning – a process that is both affordable and replicable at scale – the education system can help to catalyze rather than stifle positive change.

### **REFERENCES**

1. Sengupta M. (2012). Experiments in teacher education. *Journal of Indian Education*. Volume XXXVIII, No.2.pg 20 Retrieved from [www.ncert.nic.in/publication/journals/pdf\\_files/JIE\\_AUG2012.pdf](http://www.ncert.nic.in/publication/journals/pdf_files/JIE_AUG2012.pdf)
2. MHRD (2014) Scheme of national award to teachers, Govt. of India, MHRD, Dept. of School Education and Literacy, New Delhi
3. Scott Wurdinger, Jennifer Rudolph (2009). Teaching Practices that Improve Student Learning: Five Experiential Approaches. *Journal of teaching and learning*, vol. 6, no. 1
4. MHRD (2014) Department of School Education and Literacy, Department of Higher Education. Government of India. Annual Report 2013-14
5. Mittal Alka, Agarwal Neeru Mohini, (2008), A comprehensive analysis of various teaching strategies and innovations at higher education level, *Journal of Indian Education*, Volume XXXIV, Number 3, pg83
6. Padhi, J.S, (1999) Creative activities: A strategy towards learning achievement, *Studies on Researches in school effectiveness at primary stage*, NCERT, pg. 171
7. Koul, Lokesh. (2009). Phenomenological inquiry: Qualitative research (pg 83-84). *Methodology of Educational Research*. Vikas publishing house
8. Wurdinger, S., Haar, J., Hugg, B. & Bezon, J. (2007). A qualitative study using Project-based learning in a mainstream middle school. *Improving Schools*, 10(2), 150–161
9. Wurdinger, S. D. (2005). Using experiential learning in the classroom: practical ideas

for all educators. Lanham, MD: Scarecrow Education

10. Buzza Dawn. Kotsopoulos Donna, Mueller Julie. Johnston Megan (2013). Exploring the Relationship between Self-Regulated Learning and Reflection in teacher education. Journal of teaching and learning. Volume 9. No. 1. Retrieved from <http://ojs.uwindsor.ca/ojs/leddy/index.php/JTL/article/view/3578/3006>

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