YOU
THE UNSUNG
HERO

Cipher Alchemy

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From "Hard Times – For These Times", a novel by Charles Dickens (1854).

Pertinently, it was written just as the current format of K-12 was taking root. How different is this reality for the school education of our children, in 2021?

To the rise of the knowledge families in the fast crystallising knowledge society!

Enabling parents is the first, biggest, and catalytic education reform.

CONTENTS

LEARNING JOURNEY

FOREWORD

My colleague and author of "You, the unsung hero", Sandeep Srivastava, requested me to pen down few lines about this book as a grandparent.

My children are grown up and reasonably well-settled in their professional careers in USA. In spite of being successful in their lives, I do sense their struggle in contributing to the academic and overall development of their children. In the absence of universally applicable parenting guidelines which will give them choices and motivate them to take charge of the academics and overall development of their children, the most important 'asset' of their life has been left to the care of their schools.

Everything around us has changed. Indeed, all facets of our lives – the way we communicate, travel, shop, and entertain ourselves have transformed. Have you ever wondered if anything has not seen a significant change in the last one hundred years?

You are right if your guess is education and schooling in particular.

I do not see any major changes in schooling from the time of my schooling years and during the schooling of my children and even my grandchildren except for the use of some new technologies.

Formal schooling was introduced way back in the 1850's to democratize education. Students were mostly first-generation learners with no possibility of parental support, or guidance, teachers being the sole source of knowledge. Strangely enough,

while everything around us changed, schooling continues to be teacher-driven with a one-size-fits-all approach.

Parents, though major stakeholders of schools, nowhere figure in school pedagogy. Parents, in turn, outsource learning to schools believing that they have no role in their children's learning.

Yes, this system worked well in the industrial society but doesn't any more. The technology-driven AI-world requires different skillsets to live and succeed.

With the advent of a knowledge society where knowledge is on tap, learning and unlearning is the new normal; the most important skill for a student to acquire is "learning to how to learn". Sadly, teaching -learning of this important skill is overlooked in the school system.

It is now a well-established fact that family, and parents in particular, are at the vertex of cultivating the joy of learning among children and fill in the gaps left by schools. Who can be a better well-wisher for children than you? Your love for your children just cannot be matched by anyone else, not even by the most motivated teacher.

School reforms over the last hundred years have failed to make families collaborators and central to schooling of children. The need for this is now all the more central to schooling in the post-pandemic era. All aspects of our lives have been impacted by the pandemic, and some of the changes will stay even post pandemic.

Many parents willing to collaborate with their children certainly need guidelines and resources to take their rightful role in their children's education.

The book, aptly named "You, the unsung hero," aims to fulfil this requirement by providing insightful strategies, knowledge, and guidelines to parents to be confident enough to take charge of their children's education, particularly in their formative years.

The winning point of this book is its generic nature without prescribing any set rules. It lets parents explore their own path of ensuring the quality education of their children in recognition of the fact that each family is different.

The book does not cater to any particular set of parents but aims at deepening the wisdom and knowledge of parents across socio-economic stratas to ensure their children succeed academically and make right and informed career choices.

The authors of the book, Madhav Rao and Sandeep Srivastava, have impeccable credentials and on the ground feel of the school system.

Madhav Rao is an educationist of repute, having earned his spurs as the Principal of reputed schools in India, and UAE, and eventually heading UAE-based GEMS education in India. He brings extensive school's perspectives in this book.

Sandeep's vision, "We can accelerate human development to ensure dignity to every life by 2050" is his guiding spirit to lead the change from the front. He is passionate about the mass-scalable model of "Whole school transformation".

Saloni Srivastava, Sandeep's life partner, has successfully 'home schooled' their only daughter Shreya and helped her grow as a multifaceted individual, equally deft in academics, performing arts, painting, and photography. Saloni brings to the book special hands-on experiences of raising a child.

I am sure you will enjoy reading this book and, in turn, get all the latitude to be a wiser parent and widen your choices for rightful interventions in the academic journey and career choices of your children.

Happy parenting,

Krishan Tikoo

New Delhi

PREFACE

What is 'The Unsung Hero' about?

As parents, how many of us, at some point or the other in our parenting journey, have not felt anxious, mad, confused, inadequate, overwhelmed or lost? In your struggle to secure the best for your child, if you have ever felt like a failure, then congratulations. You have, in fact, succeeded! Buying this book, as an attempt to become a constructive parent is proof of your commitment, and we can assure you that you are on the right track. As you go through this book, you will gain the confidence to smoothen the curves and bumps along the road to make this ride truly fulfilling and enjoyable for you and your children.

Being a parent is one of the hardest, most demanding, and at the same time the most fulfilling job in the world. Parenting and other outside-of-school factors contribute to at least two-thirds of every child's overall development, making parents the most vital element in their children's growth.

Yet, the most educated of parents would not be aware of the depth of the impact that the family, the children themselves, the extended family, the neighbourhood, and the community-at-large, have on the growth of their children.

Not surprisingly, we find that the primary reason for stepping away from school-led education even for the rapidly growing community of home-schooling families is the unwillingness to accept the 'deficits in school education' as interpreted by them. For

the vast majority of such families, the compelling sway of substantive educational theories and practices isn't the key driver in opting for alternate-education.

We, Saloni and Sandeep, know about 'home-schooling' parents because we invented 'liberal school,' an alternative to home-school, for our only child. We regularly mentor other 'home-schooling' parents. It is immensely empowering to know that one can take charge of one's children's educational outcomes, irrespective of the flaws in the formal education system and the community/society.

This book explores the educationally-sound knowledge, strategies, and resources needed to become a confident parent. It will also help parents to assuredly impact and infuse quality in their children's school education. The following pages will help you understand how to leverage the teachers, the school administration, textbooks, neighbours, community, technology, and other available resources to make the most of the unique environment your children live in.

We have tried to make this book as comprehensive as possible since we do not want you to miss anything important in your child's education. We have taken utmost care to be brief, slow, and steady; the content is compartmentalized so that you can read it in parts (then reinforce as needed).

Before we begin, we would like to remind you that you are already doing the best you can as a parent! You do already know a lot of what you need to know. The book will help you align and scaffold that knowledge to make sense of it all and act with conviction. It might seem harsh at certain places since we hope to push you to be able to do the best for your children.

As the title already suggests, all parents are heroes – even if they don't always receive due recognition – however, all heroes could use a sidekick, which is what this book intends to be!

In the end, schools only impact children whose families committedly work with them. No two families have to be alike in how they influence their children for the better, and this indeed is the key emphasis of the book. The book has no 'best practices' to be shared. You, as the parent, have all the latitude to be your children's

hero – the book aims to wisen you to assertively widen and deepen your choices and interventions!

This is neither a book of 'parenting tips' nor a 'to-do' book for parents of school-going children. This is a book for transforming the collective well-being of your family around the context of your children's education – today and always.

This book is also not about a very challenging social need that we three care a lot about – supporting parents in improving special education. Institutional lead in special education is an ideal must, and it is a matter worthy of an independent book.

PROLOGUE

Is the school truly preparing your child for the future?

We all know of parents who religiously followed school instructions, homework, assignments, projects, exam schedules, participation in competitive quizzes/Olympiads and events, paid for school trips, and more, but the educational challenges for their children only got bigger with each successive grade. Their children struggled in language (competent reading), and mathematics (applying mathematics to everyday situations and vice versa), lacked scientific temper (threading consistent reasoning around physical experiences/observations), and any passionate follow-up of art/design/music/sport.

Above all, despite closely working with schools, the school years may not count as the happiest years for the family. This includes the lack of empathetic communication with school teachers, administrators, and leaders while seeking supplementary and complementary support from the school.

It is also not uncommon to hear of children achieving much in secondary school despite not being clued into their schools' routines and practices. What is common are the stories of families and children who eventually succeeded outside the school without success at school – or without any school education whatsoever.

Is your children's school truly equipping them to build a promising future?

Here are a few questions that may help you assess how well a school is preparing your children:

1. How does the school define 'quality of education'?
2. How does the school organise its processes and resources to ensure that EVERY student gets the same quality of education?
3. What is the evidence of the school's focus on the 'academic success of EVERY student', including your children?
4. How does the school ensure that you help your children become highly competent readers by the end of primary school?
5. How does the school ensure that EVERY child succeeds in math by the end of primary school?
6. How does the school ensure individualised development of art, music, dance, and sports in EVERY student, and what is your role in helping them achieve the same?
7. What are the stated life-skills, values/morals, and socio-emotional skills of every student at the end of primary, middle and secondary school? What is your role in helping your children imbibe them?
8. Are all the teachers role-model parents themselves? How does the school ensure that the teachers effectively become the role models? The answer to this may not be easy to get, but do talk to the school administration on how the personality of teachers affects students far more than the 'content' (much more so in times of Google).
9. How truly diverse are the career choices being pursued by the secondary school pass-outs?
10. Do you feel any personal joy and pride in being a parent of the school?

Irrespective of your answers, we shall try and equip you with the right tools through the course of this book to support your children in their learning journey and help you ensure that the school is as focused on your children's success as it is on the 'best and the brightest'.

We did not direct any of the aforementioned questions to children since one cannot confidently assess children's answers. Parents must

be trusted and supported to act in the best interest of their children; exceptions must be addressed exceptionally, rather than expecting to follow straitjacketed solutions. Thus, our child-centricity is reflected in our parent-focused educational narratives.

We believe that a comprehensive understanding of the immense possibilities in the role as a parent is essential for readiness to own responsibility and act effectively!

Childhood is not child's play

"Every moment is important!" is the captivating essence of parenting.

UNICEF adroitly captures the vastness of the task of parenting, especially the initial few years: *"The first years of life have a profound effect on a child's future – on her brain development, her health, her happiness, her ability to learn in school, her well-being and her aspirations (even the amount of money she can earn as an adult)."* Adding that, *"in this formative stage of life, a baby's brain can form more than 1 million new brain connections every single second; a pace that is never repeated again!"* Therefore, according to UNICEF, *"the right food, stimulation and care – or eat, play, love – are essential to a baby's brain development in the first 1,000 days of life."*

However, is this news for any parent? Certainly not. In fact, all parents also know that the next 1,000 days, and the 1,000 days after that, and more, are all important for a parent in new and different ways. In fact, parenting does not get any less challenging as children grow older; bringing up children is a 24x7, multi-faceted, and mind-space-anchored demand.

Shaping and realising childhood imperatives and opportunities (years up to college education in this context) is not child's play. On the contrary, raising a happy family – happy children, happy parents, and other happy adults in the household – is the most demanding and fulfilling, role in our lives.

More need not be said to parents on the commitment that parenting is.

> *"Someone is sitting in the shade today because someone planted a tree a long time ago."*
>
> *Warren Buffet*

In a lighter vein, think of old age!

Why do children 'fail'*?

Haven't we all wondered at some point about who is majorly responsible for our children's failure or success? Is it the school or the parents? What is the secret of happy, healthy, and 'successful children'?

All babies are born equal, irrespective of race or class. Provided with basic necessary nutrition and health, all children develop at approximately the same rate. Genes account for as little as 10% of children's development, and their environment accounts for the remaining 90%. It becomes evident that variations in children's 'life outcomes' must mean that there is variation in the environment. The key factors contributing to this environment in the early years are parents and schools.

Since schools are social institutions specialized in caring for children's education and learning needs, we tend to over analyse their actions – and not incorrectly so. Principals, teachers, and school facilities are instrumental in shaping a child's future, but the current educational system is plagued with visible shortcomings – focus on rote memorization, assessment of content rather than skills and reasoning. Despite the education system's many imperfections, – 'non-learner teachers', weak language and math achievements, and poor-quality of overall development resources and benchmarks, we see children succeeding.

This does suggest that in addition to genes and schooling, there is still a far more vital variable at play here. Parents define their children's entire environment directly or indirectly – they pick the neighbourhood their children grow up in, they cook what they think is the best food for their children, they train their children for the habits of body and mind that's their own best, and they even select the school their children attend.

There is more – not only do they control their children's immediate environment, they also have a very strong influence over the kind of environment their children encounter at school; the practices that parents reinforce, by design or by default, get better integrated at school.

Furthermore, parents push schools to improve the quality of education and learning more than schools can productively influence parents for the better. Of course, parents need to know what their children really need and how schools can provide that. Currently, while parents are pushing schools to do better, they are not necessarily nudging the schools in the right direction. For example, parents worried about their children's safety have managed to convince schools to install the latest security systems with GPS tracking and CCTV cameras.

On the other hand, despite increasing stress and suicide cases, parents are yet to focus on persuading schools to invest adequately in professionally strategizing, monitoring, and providing for the management of the students' mental health with the active support of parents, with whom children spend most of their time.

In this context, there is an urgent need for parents to understand how best to share the responsibility of their children's development with the schools – what to expect from the schools and how to assess schools on these identified parameters. This is the book you need to recalibrate and navigate your relationship with your children and their school.

By definition, the book is even more valuable for home-schooling parents. Simply put, it demystifies school processes, resources, and outcomes to plug all holes in home-schooling, and offers practiced hand-holding for the entire gamut of subjects authored as the book is by 'home-schooling' parents who taught their daughter all the subjects till Grade XII (A Level, CAIE, UK).

To answer the question of whether you, parents are responsible for your children's success or failure, we firmly believe that parents are not only responsible for their children's achievements but are also responsible for their losses.

YOU must take charge of overseeing all that happens in school and effectively deliver your part of the deal in a way that is healthy, sustainable and manageable for you, just as it is beneficial for your children.

*What do we mean by 'fail'?

It is important to register that 'fail' in this context does not refer to the academic grade handed out by schools. 'Fail' here is used in the sense of 'not being able to fulfil the individual potential of every human life.' School years are, above all, the most hardwired phase of development; most natural and efficient neural networking happens in these years. It is hardwired in the sense that it behaves like one – very rapid neural transmission.

It is good to be responsible now than to regret later at the realization that you were not there for your child when she/he needed your support the most!

Why do parents matter so much?

This is the most important question and a very interesting one too.

Children learn much more from what they see their parents do (or not do) than what parents say or discuss. The extent to which children take after their parents' behaviour can never be fathomed. The first 1,000 days, the pre-school days, are all covered in parents' imprints. These imprints are so deep that they last a lifetime; the sense of emotional security, richness of language/vocabulary, and some habits of the mind and body are quite firmly established during these days.

Parents are the gatekeepers to everything the children will experience for a long time (preschool to middle school is the longest educational phase until under-graduation). When parents select the school for their children, they automatically select which sets of experiences and knowledge/skills will be included or excluded.

Parents determine their children's interactions with extended family, friends, neighbours, and the community at the park and play areas (the people they interact with, the games they play, the amount they play). Parents also set the context for the interactions, roles, and resources for all the family members. The unique and significant educational experiences for living, citizenship, and work ethics are a part of this context.

Parents matter a lot in their own right, too, as they are motivational drivers and are the direct source of diligence, honesty, and inspiration for pursuing whatever the children decide on at any given point in time.

The five defining 'cultures' that only parents can create are listed here:
- Reading every day at home; investing in creating a multi-genre book collection (bought or borrowed)
- Conversing on all kinds of subjects/topics/news/interests; making conversations that strengthen logical, inferential, emotional, social, cultural, political, etc. strands by design
- Maintaining a joyful environment for learning; becoming co-learners with their children in the learning of all 'subjects' – like

art, dance, math, biology, history (to the extent where parents are able to appreciate the points of difficulty in learning)

- Inspiring a culture of excellence in everything the family does; cooking, cleaning, and playing done right, before seeking to achieve the same level of distinction in scholastics and co-scholastics
- Last but not the least, eating together!

Why do parents today matter like never before?

As our world dramatically changes, so must parenting! The role of parents has become even more central to children's education due to the rapidly emerging knowledge society.

As the education system moves from 'knowing things' to '(only) knowing how to know things', being a learner is the new educational goal. But 'learning to learn' is a challenge that is equally daunting for teachers and parents. Today's parents and teachers didn't get 'schooled', or 'colleged' to be learners, and no formal training can equip one to develop them into learners. Being a learner is an attitude towards knowledge, skills, and beliefs; it takes years of 'growing up' that way.

Being a learner is about being 'non-reflexive', being present in the moments at all times – exploring, observing, experiencing, experimenting, and constructing knowledge. However, school education still carries forward the 'empty vessel, outside-in' approach where the goal is to keep filling every student's 'stock of knowledge', without connecting, experiencing, or theorising.

A learner now ought to be able to create more and more 'personal knowledge', which is not necessarily unique knowledge, but the knowledge created in an 'inside-out' manner. Personal thoughts are the source of new knowledge and are tested in the 'real world' for veracity and accuracy. The education system cannot supply 'learner-teachers' in the next two decades – we still do not have schools where children learn how to know anything. Thus the severe dearth of new-age teachers is a global affliction.

There is another challenge – supporting anyone to become a learner (as being a learner cannot be taught – a clear contradiction) requires personal interactions and observations as well as dedicated time and attention. Schools cannot ensure this unless the class size is well under 10 students and the same teacher 'supports' all the academic subjects (since the ability to learn is a state of mind and cannot be compartmentalized into subject domains). This is too much to ask of any school system anywhere in the world. Schools

will have to mutate, and they would, but that is not happening in the times relevant for your children!

Obviously, only parents can help their children to become learners by becoming co-learner; nothing else is needed or can be done. To help children learn how to learn, you must spend time with children in that very mode (be a learner, not a 'knower'). This is the education we need. You have to enjoy getting rid of your knowledge, as well as ignorance, to equip yourself to support your child!

Here are some of the indicators of being in the 'learning mode':

- You take the initiative to think things over independently before asking others for 'answers', information, or clarifications.
- You do not let prior knowledge come in the way of the effort to make sense of the relevant new knowledge/experiences coming your way.
- You present your considered thoughts to someone for evaluating, using conversation (that is, 'feedback') to refine your thoughts further.
- You are thinking all the time; all your knowledge/experiences are 'personal' (well-considered, reasoned, personally convinced, and continuously self-validated).
- You respect other learners, you encourage people to think for themselves and not give away information without making others do some thinking first!

And the best part, you must never get ahead of your child! It is indeed easy; just another parent-like commitment is required to be in lockstep with your children.

It is possible to learn new subjects you never thought you could learn. Learning about new subjects empowers you. So, don't be afraid to go back to the beginner's level and float along!

How does every parent matter?

Surprising as it may be, many of the important educational developments of children are such that the determinants of their parents' 'life and professional conditions', for instance, their education, profession, economic or social status, and cultural environment, don't matter. Therefore, every parent matters.

Each parent, without exception, has a deep, definite, and diverse impact during the pre-school years on his or her children's development, including quality of social exchanges at home and with others, cognitive engagement in routine things, etc. The physical safety, good mental health, and emotional security of children are ensured by every parent well into their young adulthood.

Proficiency in the language of academics is highly correlated with the quality of conversations at home; schools have no time for substantive conversations (listening to lectures, questions, and answers, doubt clarifications, expressing opinions do not help in enhancing language abilities). Interestingly, the quality of conversations in the primary years is less about the content and a lot more about learning the 'rules and habits' of (engaging) conversations, such as learning to listen, asking effective questions, responding to the point, managing egos, gathering new knowledge from conversations, watching out for linguistic gains, etc. All parents can help their children improve their conversation skills while simultaneously improving their communication skills.

'Parental commitment' and 'parenting style' outclass all other aspects of parental involvement. All parents can be mentored on becoming more committed to their children and can later evolve their own productive 'style' best suited to their background. These two parenting qualities explain why parents across ethnic divisions positively affect their children's educational outcomes despite having widely differing approaches.

The impact of parenting is not a prisoner of the parents' economic, social or cultural context and is more tightly tied to the inherent quality of the parents' behavioural component. Examples of good,

committed parenting can be found in all social classes and ethnic backgrounds – great news for parents.

Genuine parental aspirations also significantly impact children's realistic scholastic aspirations and achievements. Aspirations, of course, are also not bound by any socio-economic conditions, but parents can sometimes fail to back these aspirations due to unexpected changes in their personal lives.

Whether you are a father or a mother, a single parent or a couple, the biological parents or adoptive, you can ensure your children's success. While different personal circumstances might affect your parenting style, it does not affect your eventual ability to shape your children's lives. The antidote to the ill-effects of a very demanding professional phase on parental commitment is an even higher investment in conjugal relationship; a more understanding relationship to work with.

Let another myth also be busted – maternal educational level is mostly separate from a mother's efficacy as a parent – a mother's ability to make her home a 'reading home' is almost unaffected by how educated she is. A reading home is one where everyone reads for at least an hour every day; the language of reading is not as important as the habit of reading 'long texts' (reading fiction is a simple yet, very enriching language experience). Her ability to nurture a reading home (a must for turning children into competent readers) is incomparably more impactful than her ability to teach or help with homework.

No less important is the role of parents in maintaining an intellectually stimulating environment at home by asking more questions as an answer to the volley of questions asked by children. A parent who has the time and interest in asking more questions to her children than they ask her will radically transform their education.

For example, if your children ask, "Why is the sky blue?" the most effective approach for you would not be to offer an explanation or google a video that does so, but to ask questions like –

- Why did you ask the question? Why do you care about the colour of the sky? (Such simple questions are, in fact, a goldmine of information about your children).
- Do you like the colour, blue? Did you ask the question because you like the colour or because you don't?
- Is the sky blue all the time? What other colours of the sky have you seen? What about the colour of the sky at night?
- Is the sky blue when the sun is out and hot? Where is the sun when the sky is blue?
- Why do YOU think it is blue? Why do you think something may be blue in colour? (This may sound like a 'knowledge-loaded' question, but it isn't so. ANY thoughtful answer is good enough and will, in fact, automatically get refined by the children themselves the more they see and 'explain' their own curiosity.)

Only parents can let children be and steadily enrich their observation skills, thinking about experiences and mentor continuous logical reconnections of their knowledge and skills without intervention. Schools cannot ensure this space to students as teachers are not meant to be parents!

To be true, schools were never created to replace parents. However, we have given away irreplaceable roles and duties in favour of schools, and in the process, ensuring schools fail! Families and society are the prime educational institutions; schools are meant to aid. Parents and society-at-large must self-educate themselves on education and redefine the role of the formal educational institutions to best fit in their own scheme of things.

Indeed, the current unprecedented stress in the education system is precisely because the opposite and unnatural thing is happening – we have left formal educational institutions to decipher and dictate how society and families must educate their children. This is at the crux of the global education crisis. Society and individuals have chosen to ignore their educational roles, and despite the huge personal and professional costs of this abdication (education

of children is one of the most stressful demands on us), we are unwilling to act as if education is a hornet's nest.

Simple evidence of the impracticability of schools' attempts to educate parents is too narrow and does not help raise educational outcomes. We must self-educate ourselves, NOW. A social institution must not do more than what it was created for, else chaos will reign, and that is what is happening. Once again, we only blame schools for not standing up for themselves and stopping the ever-expanding roles they are usurping or being forced into! Schools must act professionally and in the larger interests of society and be honest about what they can really do!

It is truly humbling, life-affirming, and gratifying to realise how much impact EVERY parent can have in uncountable ways on multiple levels.

Unfortunately, researchers tell us that there are large differences among parents in their levels of involvement, aspirations, commitment, and beliefs in making an impact on their children. But this can be addressed on a mass scale.

To be fair to many parents withdraw themselves and feel hopeless about the strategic role of school education, based on the memories of their own school experiences. Schools become just a tactically important place for many families – childcare, safety, socialisation, some default habits, and routines, etc. We cannot blame schools for this beyond a point. It is of paramount importance that we don't belittle our own creation- schools. We must not desire and seek less from schools, and that is how schools will also grow to be more meaningful.

Every parent must expect more from schools, but in the right way, as discussed. Every parent matters!

Become the hero of your children's life: shed all real and imagined limitations and be a loving parent. The love for your children will take you and your children to places!

What do parents gain from parenting?

While parenting is physically, emotionally, and financially demanding, it's also an opportunity to learn and grow as individuals.

Living up to children's demands may, in fact, be the last of the developmental stages for adults. Childhood is unique to humans as no other animal enjoys this phase of growth (we will come to this detail later). Adults who effectively navigate this phase with their children experience unique and invaluable personal development –

- Parents are constantly on an emotional rollercoaster – right from dealing with their children's mood swings to managing their own emotional and mental health. This journey does elbow parents to develop stronger bonds with their own support system while improving their emotional and mental well-being as well.
- Managing children along with work, extended family, friends, other social circles, and personal interests push parents to improve their time management skills. It gives them a better perspective on what truly matters and an enhanced sense of prioritization.
- Frequently, parents also develop an active interest in their children's co-scholastic activities, helping them discover their hidden passions and interests.
- Parents also need to consider financial planning for themselves and their children's future. This can help them reassess and create a more effective plan for their financial standing in the long run.
- Parenting can also instil a heightened sense of environmental responsibility, a very welcome personal growth. Parents who worry about the world their children will live in adopt sustainable practices and encourage their children to do the same.

Good parenting pushes your children and you towards professional and personal success. Ensuring that your children are emotionally, physically, and academically strong allows them to become valuable and productive members of society.

At the heart of it, good parenting is an important ingredient for creating more compassionate humanity for happy mother earth (and all its children). Child-centered humanity is indeed the next stage of growth for us – we may have been everything in the past, but even the thought of child-centricity has remained alien to us. In a way, Dr. Benjamin Spock's books talked about such a world, although at the level of families. We will soon discover the relevance of his books and children-centered societies.

How is each parent unique?

For a long time, the children's grandparents educated the parents on how to rear their babies! They, in turn, passed on that knowledge to their children after adding to it what they had gleaned from their experiences!

By the 1940s, there was plenty of knowledge on every aspect of child development that postulated the dos and don'ts of parenting. Parents had just started perceiving their children as individuals with needs that could not be satisfied by one-size-fits-all solutions. First published in 1946, American paediatrician Benjamin Spock's 'Baby and Child Care' became a household staple upon release.

Spock made the then-radical suggestion to *"love and enjoy your children for what they are and forget about the qualities they don't have"*, rather than *"doling out love only when earned"*. He pointed out that not only are children unique but so are their circumstances. The values, traditions, and beliefs we grow up with as children greatly evolve by the time we have our children. Therefore, according to him, the best parents are learners and remain learners for the rest of their life to continue growing, this time along with their children.

Hence, *just as all children are unique, so are all parents*. This uniqueness is an amalgamation of their circumstances – education, race, ethnicity, religion, beliefs, values, their children's personality, and the external environment in which the parent-child relationship is blossoming.

In recent years, society has changed drastically, and our mindset as parents and individuals has also seen a significant shift. Parenting has felt the impact of this as much as any other sphere of life. With changing times, for example, parents have become more accepting of their children's sexual preferences, and society at large is more open to non-traditional family settings, like single, same-sex, and adoptive parents.

Although there is no prescribed manual or existing knowledge to guide them, parents keep discovering new things about their children and the dynamic societal norms they are living in. This can, at times, even make the parenting process unpleasant. It is

the life-long commitment to growing and learning that makes the challenges of parenting so fulfilling.

Internalising parenting as a life-long journey is, in fact, the first step to becoming an effective parent. One of the biggest parenting challenges is accepting our shortcomings. As we accumulate all kinds of baggage through life, we need to ensure that our children learn as much as possible from our experiences while bypassing our bad habits. Creating a balance between protecting them from making the mistakes we made and allowing them to experience and learn from their own mistakes is as challenging as it is important.

To go down this path, we first need to get a better understanding of ourselves. Ask yourselves –

- What worked for you in school and what didn't? Why?
- What are your aspirations for your children?
- Why do you aspire the way you do and for the things you do?
- How ready would you be to change if your children's goals and expectations differed from yours?
- Do you have the capacity to accept your children the way they are?
- Do you believe in 'inductive parenting' to reason with your children?
- Do you know which skills and capabilities you need to fine-tune to be an effective parent?

Last but not the least, we parents need to be open to learning from the people around us, including our children, their peers, teachers, online communities, etc.

What transformation is needed in parent education?

Since parents play such an important role in society, it is critical to equip them with relevant knowledge. Currently, school-led parent education is designed and delivered to enhance the schools' institutional capacity. The majority of parent education is devoted to 'acquainting' parents with policies, rules, decisions, changes, etc., to reduce the friction between the parents' response and schools' needs.

Its focus is on making parents an extension of the schools' arms (into homes), by ensuring that tasks like homework, assignment, projects, surveys, and payments are completed as per the schools' needs. Delivered across multiple interfaces (meetings, newsletters, emails, and messages), this system is not even conducive to queries, feedback and questions from parents. It also targets parents to volunteer time and resources for schools, but at the terms tailored towards the school's convenience and hidden agenda.

Ultimately, far from enabling parents to complement the school's efforts and become equal partners in their children's education, it gives them a supplementary role, nothing more than minor agents.

Parents also rely on books and informal sources like Facebook pages and WhatsApp groups with like-minded people to educate themselves. However, a lot of these efforts are need-based for specific issues; for example, parents might reach out to their math-savvy contacts if their children are struggling in math. The parents' efforts at a holistic understanding of their children's needs and their role in navigating school life are currently inadequate.

In many cases, parents feel too intimidated or too occupied to take fuller control of their children's education when seeking need-based help.

There is an urgent need to transform parent education.

This book is an attempt at this transformation. We, the authors, aim to help parents feel equipped and empowered to play a central role in their children's growth, rather than supporting them from the periphery, without compromising on their professional or personal life. We want parents to realize that this change requires a strong

mental shift accompanied by simple new routines, instead of major time commitment and monumental lifestyle changes.

> *"I hope and pray that all you parents in the sound of my voice will train up your children in the way they should go."*
>
> *Charles Portis*

21st Century schools and the authors!

> *"Children are educated by what the grown-up is and not by his talk."*
>
> *Carl Jung*

The 20th century belonged to the schools – the administrators, leaders, teachers, textbook authors, educational philosophers, teacher trainers, product and service providers. Schools built both the makers and the markets for the industrial society and forwarded the multi-faceted benefits of industrialization – increasing economic growth and quality of life – to the four corners of the earth.

Schools' role in the 21st century, in making the knowledge society

It is here that our 70 years of collective experiences, experiments, and analyses of what must change are unique for contemporising schools. There is a whole world of change to be secured but to move towards these changes assuredly, we must prioritise. Society (and parents) and schools must set their sights on the most impactful changes to be made. Here is a list of the five most challenging transformations that schools and parents need to work on sooner than later:

Challenges that parents must address at their level –

1. *Making assumptions* – Too often, it happens that both parents and teachers approach each other with a whole host of prior assumptions, which inevitably lead to the blame game. Parents need to educate themselves about the school's processes, resources and leadership; curricula, pedagogical approach, assessments and textbooks; and socio-cultural dimensions. There is little teachers and schools can do to influence these in short to medium term and even accommodate some of the genuine individual differences among parents. Parents can realistically assess how far the school can go to meet their children's needs more effectively.

2. *Not being seen as the key proponent in their children's academic success* – The big role of schools in students' success was rooted in historical conditions; parents were unschooled in the 1800s. A good majority of parents today are well-educated, aware, and aspirational. Opportunities to know more, know better, and get skilled are too many – we are spoilt for choice. Yet, a vast majority of parents try to keep a safe distance from the children's academic demands and milestones; it is all left to the schools and supplementary education providers. Let us not forget that the school system is a human system. For how long can teachers worry about the academic success of students who would not care enough? Why and to what end? Who is there to support them? Parents have to dirty their hands and take charge of the academic success of their children.

3. *Not having a shared vision with school leaders for radically transforming schools* – Parents find it difficult to discern if any changes in curriculum, transactions, and assessments proposed by schools are for the greater good. By the same token, when schools are unable to implement changes, parents accept that as well. Both, unfortunately, have been failing to go beyond exam scores and syllabus completion. Parents have to educate themselves to a level where they can constructively envision, design, and implement transformation in the education processes and resources in school and at home. The school's effort at educating parents is too narrow to empower them duly. Hence, parents must educate themselves on their own.

4. *Treating schools as reform centres* – If a parenting style fails to promote positive behaviour and attitude, parents should not expect schools to rectify the issue! In fact, any unacceptable behaviour will adversely affect the school environment, ultimately affecting children's education.

5. *Taking parenting lightly* – Success in school education is almost totally correlated to what parents do (although there is a wide range of ways in which the parents' influence comes into play). The strongest evidence for this is how siblings attending the

same school and taught by the same teachers grow up to be two distinctly different people. Of course, despite living in the same house, each child has a different home environment – the eldest, for example, usually gets most of the parental influence by default, and the influences tend to diversify depending on the number of siblings.

Challenges schools must address at their own level –

1. *Not supporting ALL students* – EVERY school ONLY promotes and talks of its few successful students. Schools have become more of social institutions for separating the sheep from the goats and judging the good from the bad. Schools across the world have failed more children's hopes and expectations than they have fulfilled. Schools have an abysmal record of supporting ALL their students; in fact, more children join the 'struggler' rank with each passing grade – even though all children enter the education system with the same potential.

   Ironically, the 'gifted' are just as marginalized as the 'strugglers' in schools. Both ends of such students need individual attention and patience, but schools have no time or resources for nurturing students at an individual level!

2. *Not dramatically shedding teacher-centricity of school education* – One of the threads that runs through school systems across the world is that schools and teachers are never wrong, even at the end of 14 years of schooling – it is always the children's and/or the parents' fault! However, this is a direct outcome of near 100% dependency of schools on teachers for everything. In 200 years, no school system in the world has even earnestly considered the seriousness of this limitation on the quality and equity of the school system.

   It is enough to emphasise that getting away from the teacher-dependent system is the FIRST step towards strengthening school education quality and equity revolution. It calls for enabling parents as 'co-teachers' and creating a

'Family edition' of curricular books which can be effectively transacted by ALL parents.

The current parental support is sermonizing at best and intimidating and humiliating at worst. Schools across the world keep parents out of sight and support; even the best-qualified parents are not welcome inside the school system, not even in very high-end private schools.

In the schools' defence, it must be admitted that schools are inherently 'intensely human services', which have to be as teacher-centric as possible. After all, teachers' time is all that is valuable in schools, if all students can competently read to transact the curricula (however, the school system has ensured that competent reading among all students is not realised even in the best schools of the world). Indeed, reducing teacher-centricity of schools is both a means and an end towards transforming schools.

Expectedly, nothing less than a revolution in parent education and empowerment can help transform schools. This book is quite the resource and script needed for the same.

The book is the story that schools need to hang on to and support parents to overcome their crippling constraints.

3. *Not able to teach first-generation learners* – Worst of all, school education has failed to develop even a semblance of commitment to understanding the challenges and dimensions of educating first-generation learners. This is also the most crippling reason for high drop-out rates and 'slow learner' volumes in schools. The schools' record in making a difference to first-generation learners would be in single digits at the best, that too at the best of schools.

Why is this so important and relevant?

Even in developed nations, the number of children who effectively grow up as first-generation learners is alarmingly high in percentage (of total students) because, for all practical purposes, many (even formally qualified) parents cannot

support their children's education. And in all school systems, linguistic minorities are effectively first-generation learners.

4. *Not able to train students to support the education of future generations*
    Even the most well-schooled, highly-educated toppers are unlikely to effectively support their children's school education, even in the primary years! For all of us (including school teachers and leaders), the entirety of school education is part of conscious amnesia, and our children are no exception. They too, will not be able to school their children (even if they were to become schoolteachers).

    This sense of 'lost years' at school must end with us. We, the parents, must pledge to enable our children to school our grandchildren, if they wish to do so, and not be handicapped by the peculiar kind of school education we have had.

    Schools have been allowed to perpetuate their role and relevance in outdated ways, mistakenly assumed to be a vital part of the human development process.

5. *No 'Overall education' at the cost of academic excellence* – Briefly, schools are the society's arm dedicated to the academic education of children. And the academic success of every child was never more important than today and in the times ahead. How can school abdicate this goal for anything else? The academic success of ALL students is the non-negotiable primary goal of schools.

Fixing the school system

The first step to fixing school education is to make parents the anchor and educate the entire family (rather than educating just the children – which, frankly speaking, seldom works as well as we expect it to).

It is in this context that a famous quote by John Dewey, a twentieth-century American scholar, and educational reformer, becomes unexpectedly relevant –

"What the best and wisest parent wants for his child, that must we want for all the children of the community. Anything less is unlovely, and left unchecked, destroys our democracy."

Schools should focus on institutionalising the secret recipes of the 'best and wisest' parents (the parents of children who 'succeed' in school years, not necessarily in school curricula and evaluation) to be widely shared with and used by all parents.

The book has been written for parents with this quote in mind – to be the first to articulate the importance of parenting and what parents must do to be the 'best and wisest' in their own right.

This book does not address what schools and teachers should do to help parents on this journey; this is what we, the authors, do professionally – helping schools transform to ensure that EVERY CHILD SUCCEEDS. The centrepiece of this intervention is a whole series of new-genre 'textbooks' written exclusively for ALL parents to support blended learning that decisively guarantees equity to every student.

That is why the book is uniquely titled – 'Parents – The Unsung Heroes of School Education'. Through this book, we hope to emphasize the need for EVERY parent to become their 'best and wisest' version, especially with respect to being involved in their children's school education.

We also aim to raise the bar of the 'learning ability' of every parent. By learning how to make their children life-long learners, we will, in the long run, make our families happier and more financially secure (two conditions that must be fulfilled for children to be able to truly learn).

Case studies – How unique can each parent be?

This book is not about 'best parenting' stories or anecdotes, for every story is unique and cannot be 'copy-pasted' into the lives of any other family. Two of us, Saloni and Sandeep, inventively 'home-schooled' our daughter, and only we know how unique our journey was.

However, just to authentically substantiate the multitude of parental guidance, we offer our personal parenting experiences as case studies.

First case study

Textbooks were the only source of knowledge, limiting teachers' content knowledge and students' learning! My mother, whose education was discontinued in Second Form (Grade VII) to get married at the age of thirteen, took me out of school when I was in Grade III to help me crack the entrance examination for First Form (Grade IV) as she was dissatisfied with the education I was receiving at school! This was during the 1950s in India.

She went out of her way to learn what she could to help me with my learning. In my first attempt, when I failed, she simply said, "Son, there is always a next time". That was her way of giving me hope and helping me accept failure as a part of life.

After that incident, I was determined never to fail her again, and I didn't. In fact, till she was alive, well into my 50s, I couldn't fail her at anything, and I was collecting accolades as a Biology teacher and a very young principal.

Second case study

On 16th June 1981, the day my secondary exam results were released, my father and I won – I topped in my school, and he went from almost 40 cigarettes a day to 0.

In grade VII, I learnt about the health hazards of smoking and had started pestering my father to quit. During that academic year, my father played the masterstroke – a motivational gem – by vowing to quit smoking if I topped in my secondary exam. Much later in

life, I realized that he took those months to calculate my chances of winning, making the offer he felt would push me to go the extra mile to get him to quit smoking.

Equally significantly, I never looked back academically thereafter; in fact, I have never second-guessed any goal I have set for myself since 1981!

Third case study

The greatest impression cast on me was by my mother, who was schooled only till secondary. At the age of 18, I enrolled for undergraduates education in one of the country's top universities. I struggled to thrive in the new city's conservative and socio-culturally complex environment. I would come home every weekend, unwilling to go back to the hostel. My father would be in two minds about letting me stay home, but my mother forced me to go back every Sunday evening. She never said a word about the cost of visiting home four times a month for almost a year! She never gave up on making me return as I learnt to live in unfamiliar and unfavourable social conditions.

Fourth case study

Being a daughter of two professors and scientist, I had entirely another kind of parenting – enrolled at the best school in town, but no academic pressure at home, surrounded by books of all genres, music, dance, plants, and animals.

Looking back, this made it easier for me to experiment with and home-school my daughter and redefine home-schooling in the process, what I call 'Liberal schooling'.

How did our parenting journey take us to home-schooling?

We, Saloni and Sandeep, co-authors, ended up 'home-schooling' our only daughter, Shreya, 23 years of age now. This is our story leading up to the invention of new-age home-schooling. We were ecstatic when she was admitted to the pre-primary wing of Mirambika, India's pioneering (and only) 'free progress' school. Mirambika was then among the most progressive and liberal institutions anywhere in the world; we felt our life was now 'settled' for good.

During the pre-primary years, Shreya loved the school – the environment, the freedom, and the teachers – everything resonated with her free-spiritedness (as all children are at 4 years of age).

The seeping of dissonance was almost in tandem with the beginning of the primary years. Some of her classmates started calling her names because of her complexion. This left her confused and disheartened. Despite the relatively small class strength of just about 15 students, the school could not figure out how to solve this problem. We tried involving the other parents, expecting them to intervene on behalf of their children, but all we got were excuses blaming the house help for inadvertently inculcating a sense of 'superior whiteness' in their children, or worse, complete nonchalance.

As the years went by, such incidents started increasing, with Shreya's classmates regularly ganging against her for fun. It had a negative impact on her, causing her to act out. She started turning into an angry child – tearing up copies of her classmates, screaming and crying at her peers, and getting into vicious arguments every other day. Her reactions only gave her classmates more ammunition for their attacks. The teachers and other supervisors kept advising and reprimanding Shreya and asking her to change – without using class management practices to control or censure her peers' behaviour.

We increased her engagement in art and vocal and instrumental music at home to turn her focus away. However, the school was not supportive of her time spent at home on her interests and insisted that even unscheduled and weighty homework had to be given the top priority at home at all times.

Mirambika's problematic attitude reached its zenith in 2009. Shreya's photograph of the diamond ring formation of the century's longest solar eclipse on 22nd July 2009 had gone on to be featured across national and international news sites and channels. Instead of lauding or encouraging her, her principal urged us to 'leave Shreya alone' and make her blend in with the rest of the crowd at the school as a solution to the bullying.

Things came to an abrupt halt when, on a day in Grade VI, after spending eight years at Mirambika, Shreya announced that she didn't want to go to school anymore. She was at her assertive best and so convincingly explained the reasons behind her 'decision' that we immediately realised that leaving Mirambika was the only way forward. Acting as parents are 'supposed' to, we agreed to think about it, as we had on many instances in the past, treating it like just another venting session.

She didn't go to school for a week. As more and more details and stories tumbled out, we were more convinced than ever, though shattered, that one of the best 'experimental' liberal schools in the world had turned out to be painfully limiting for her.

We used the remaining months of Grade VI to explore our options and figure out the next steps. Since Shreya has already been used to a non-traditional education system at Mirambika, we had to work hard on creating the most suitable approach for her education. Thus, began her 'liberal schooling' from Grade VII onwards. It was an unlikely step for any parent to take – leapfrog to the natural next step – the home-schooling option! Of course, being educators helped us invent a new format of 'school education' – the way well-educated parents must educate their children.

Having completed IGCSE (Grade X) with the ICE Diploma and AS & A Level (Grade XII) with the AICE Diploma as a private candidate from CAIE, UK, she is now attending an online Bachelors in Arts (English) from Amity University, India. After graduating from school, she interned for a year at India's largest-circulating English newspaper and has been performing as a theatre artist in auditoriums and colleges across Delhi for the last two years.

This experience transformed us personally and professionally. In fact, we were very particular about calling her education 'liberal schooling' (as discussed in more depth at a later section), not 'home-schooling', or 'home-education', since 2010.

One of the key factors contributing to our writing of this book has been our journey of educating our daughter, by far one of the most valuable experiences of our life. Not only did it help us understand and support Shreya much more efficiently and proactively, but it also made us realize the intensity of challenges faced by parents across the world. If we had such a disappointing experience at one of India's leading schools as educated and aware parents, we could only imagine what others go through.

This made us realize the need to reform our current education system and, more importantly, the need to educate parents about the unmitigated and expansive impact of parenting.

As challenging as it got on many occasions, we feel satisfied and enlightened after having played such a pivotal and involved role in our daughter's education, especially once we started liberal schooling her. Despite our long-standing and close involvement in the field of education, we did not, at first, feel equipped to take on this task.

Once we started exploring different options, we realized that taking direct charge of our child's education was a lot less intimidating than it had seemed at first. In no way do we suggest all parents shift to this mode as we all have our personal constraints and preferences. However, we would like to reiterate that all parents are capable of being at the centre of their children's education in some way or the other – be it in the form of regular check-ins with our children, managing their schedule, creating a vibrant culture of learning at home, or home-schooling them altogether.

This book is our attempt to help other parents, who might be facing similar (or their own unique set of) challenges, give their children the best possible environment for growing without feeling helpless and shackled by the external systems and circumstances.

EDUCATIONAL SYSTEM

"I have never let my schooling interfere with my education."

Mark Twain

We start this section by discussing the popular educational theories before moving on to the various school systems. While the content may feel heavy, intimidating, and even irrelevant at times, we strongly urge you to read it. It will help you understand what we know about how children learn and what must be the educational imperatives for schools. This, in turn, will assist you in searching for ways to improve your children's learning (in addition to our suggestions detailed in later sections). Additionally, as we mention in detail later in the book, moving from general theory to the details and specifics is the ideal way to learn, something you will get to experience first-hand while reading this book!

Influential education theories

Most parents know how to strive to be financially, behaviourally, professionally, socially, and emotionally sound. However, how many of us are committed to becoming educationally sound? The importance of providing good education to children need not be overemphasised. We need to invest more heavily in trying to develop a better understanding of education.

Much like the case for other domains of knowledge, the best way to educate ourselves about education is to learn the relevant theories and then observe and experience the application of these theories.

Fortunately, for parents and educators alike, only the theories on the educational development of children are to be understood; the application – seeing deliberate elements of theories at work – is a natural part of both roles. While teachers are formally introduced to these theories, parents need to catch up.

In many cases, teachers and schools themselves are not consciously aware enough to be able to pass on the knowledge to parents. Even if they are aware, they might not necessarily be committed to educating parents. This asymmetric knowledge of theories is one of the major reasons for the limited involvement of parents, eventually resulting in low quality of education.

All parents need to be educated on the most essential educational theories, as we are our children's first, most impactful, and lifelong teachers. We are also the best qualified – we love them the most. To top it all, any knowledge and skills to be learnt are all in the public domain; the traditional role of teachers is anyway not relevant.

Yes, we did our best in designing the presentation of the theories – bullet points, just the bare basics, and in a language that is directly actionable for parents (no interpretation losses).

Common theoretical frameworks

We will start with an introduction to the four most common theoretical frameworks talked about by school educators. Please read on; for the sake of being to the point on each theory, we will just list the key actionable lessons relevant to educating children.

Jean Piaget (1896–1980)

Jean Piaget was a Swiss developmental psychologist. Best known for his Cognitive Development Theory. He had a massive influence on the modern education system. According to him:

1. Children progress through a series of four key stages of cognitive development. Each stage is marked by shifts in how they understand the world.
2. Since the stages of development are biologically determined, the rate of learning cannot be manipulated/ controlled. Children cannot undertake certain tasks until they are psychologically mature enough to do so.
3. Children's thinking, on the whole, does not develop smoothly. It takes place through transitions at about 18 months, 7 years, and 11 or 12 years. This has been used as the basis for scheduling the school curriculum.
4. All children try to strike a balance between assimilation and accommodation, which is achieved through a mechanism called equilibration.

Based on his theory, the recommendations for parents and teachers are –

1. As children mature at different rates, they should be given individual attention and need to be treated differently.
2. Learning takes place through the process of assimilation and accommodation. When children are introduced to a new phenomenon, they try to understand it by connecting it to things that they are already familiar with.
3. Children should only be taught things that they are capable of learning.

4. Learning must be active; that is, learning by discovering.
5. The order of teaching should be based on the development of stages (for example, teaching of conservation of number, before conservation of weight).
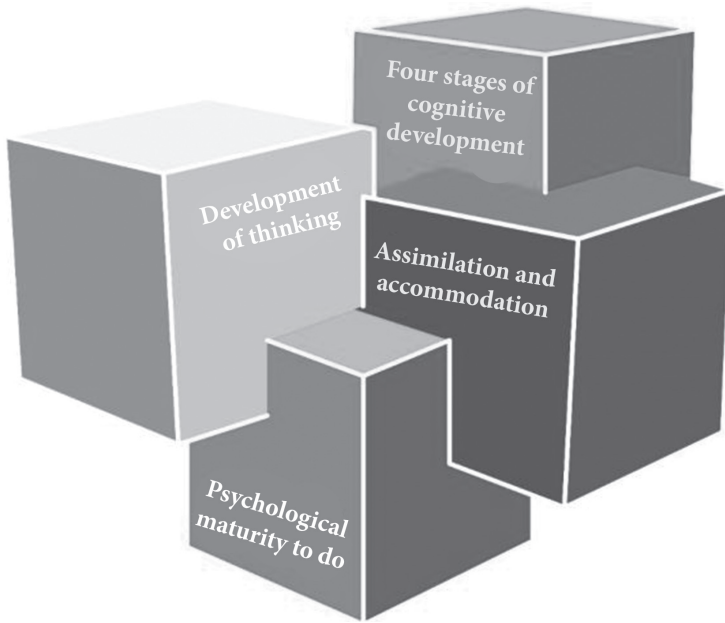
Lev Vygotsky (1896–1934)

Lev Vygotsky was a Soviet psychologist responsible for establishing the foundations of many theories in children's cognitive development, particularly of what has come to be known as the Social Development Theory. This theory explores the central role that the community plays in children's process of "making meaning". According to Vygotsky:

1. Each child learns distinctively. Thus, the level of knowledge and skill varies across children, even if they are of the same age or from similar backgrounds.
2. The overall goal of education is to "generate and lead development which is the result of social learning through internalization of culture and social relationships".

3. Past experiences and prior knowledge are important in making sense of new situations or present experiences. Therefore, all new knowledge and newly introduced skills are greatly influenced by each student's culture, especially their family environment.

4. Language skills are critical for creating meaning and linking new ideas to past experiences and prior knowledge.

5. Children working in a group learn more effectively.

6. Teachers need to become expert observers of children, understanding their level of learning before deciding the next step to help meet the children's individual needs. It is, therefore, important to establish communicative teacher-student relationships to heighten teachers' awareness and promote children's growth by encouraging them to be open to new and different possibilities.

7. Vygotsky introduced the concepts of *'More Knowledgeable Other'* (MKO) and *'Zone of Proximal Development'* (ZPD) –

A *'More Knowledgeable Other'* is a person who has more knowledge about the topic being taught than the learner does. In general, parents and teachers are these MKOs for the children. ZPD has been defined as

> *"…the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers".*

When students are in the ZPD for a task, providing appropriate assistance will boost them to achieve the task.
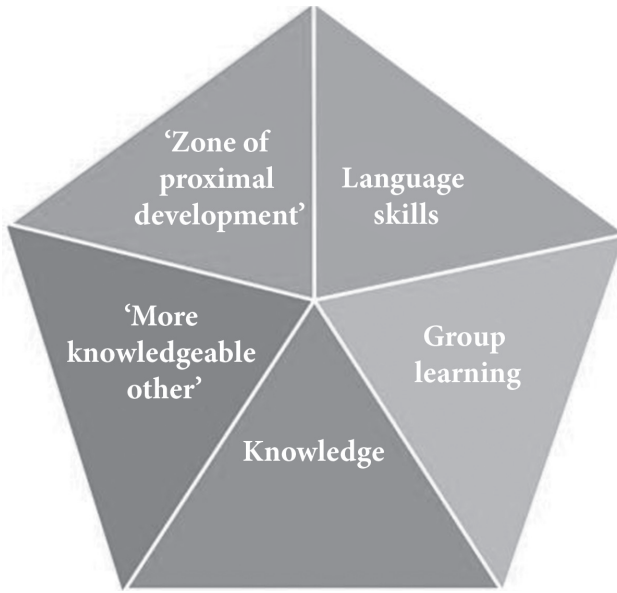
Howard Gardner (1943–)

American developmental psychologist Howard Gardner has led a paradigm shift in our understanding of (formal) education – he first showed us that defining intelligence only in terms of standard IQ (Intelligent Quotient) is not always useful because the tests measure only a narrow range of skills. Having disavowed the traditional answer to 'what is intelligence?', he proposed the *Multiple Intelligences (MI) Theory* as the more comprehensive and relevant answer.

Gardner distinctively identified eight intelligences in the theory, which has huge implications for pedagogical processes and resources.

1. *Linguistic intelligence* – The capacity to use language to communicate successfully.
2. *Logical-mathematical intelligence* – The capacity to analyse problems logically and investigate issues scientifically.
3. *Musical intelligence* – The capacity to recognize and compose musical patterns.

4. *Bodily-kinesthetic intelligence* – The capacity to effectively coordinate mental and bodily controls to perform tasks.
5. *Spatial intelligence* – The ability to appropriately visualize patterns within defined spaces.
6. *Interpersonal intelligence* – The ability to work happily with others.
7. *Intrapersonal intelligence* – The capacity to understand oneself, by acknowledging our feelings, fears, and motivations.
8. *Naturalistic intelligence* – The capacity to observe nature, notice changes in the environment, and use tools to care for plants and pets.

Gardner claimed that the eight intelligences rarely operate independently. There is much interaction between them; in fact, multiple intelligences are used simultaneously and tend to complement each other. They evolve and enrich while developing skills for solving problems.

The key implications for parents and teachers based on his theory are –
1. Students have a varying blend of intelligence, thought, and learning in many ways. Educators can plan lessons around the MIs and meet the differing needs of all learners.
2. The eight intelligences are needed to live well. Educators, therefore, need to attend to all the intelligences, and not just a subset.
3. For educators, this opens the door to a new world of possible approaches to meet better the range of learners' needs in a group. They can design various activities around a concept, each focused on the use and development of one kind of intelligence, thereby personalizing learning.
4. In some ways, it pronounces the death sentence to the kind of traditional school education we are familiar with. We frequently see schools being unable to effectively handle a situation where the majority of students face the same difficulty (a disproportionately large number of students in a class, for example, struggling in mathematics) leave alone, managing different students struggling with different issues.

We start by talking about the three most common theoretical frameworks talked about by school educators.

Expectedly, we need to be brief on each theory; we will just list the key actionable lessons on educating children.

Bloom's Taxonomy

As the name suggests, Bloom's taxonomy is about systematic classification. Dr. Benjamin Bloom led a team of thinkers who proposed a continuum of thinking (cognition) in a sequence – from simple to complex. Cognition is the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses. Bloom's taxonomy explained to us the levels of mental sophistication in how we acquire, organise and understand knowledge (of all kinds).

While schools and teachers often use Bloom's taxonomy to put parents on the back foot in discussing the performance of children and how they are doing the best job possible, it is something very basic. First, it is very similar to Maslow's Needs Hierarchy – lower-level needs may not be motivational, but they must be satisfied before seeking to fulfill higher-level needs. Second, it re-iterates that we can only learn something in well-identifiable stages, from basic (for example, knowing the basic working of a thing) to complex (for example, creating a physical model of the thing).

Bloom's taxonomy has been evolving through usages and research, but it is illustrative to know the original six levels of thinking, pictorially presented below:

Judge validity of data, ideas, outcomes, processes	Knowledge
Seek alternate, better perspectives, or solutions	Understanding
Make inferences and state applicable conclusions	Application
Applying knowledge, fact, ideas etc. to situations	Analysis
Demonstrating understanding of fact and ideas	Synthesis
Recalling previously learned material, fact	Evaluation

There are variations in the nomenclature of the levels, and that should not worry anyone at all. As stated, it is about a sequence of the complexity of thinking. Names are only meaningful to the extent that they make the application of this model easier in teaching and learning.

It helps both teachers and learners and, by definition, you, the parents. It is a very popular framework for planning teaching, and there are no prizes for guessing the reasons for its popularity – simplicity in application and analysis.

Teachers worldwide use a collection of verbs called keywords for each level – to identify the rigour of thinking associated with each level; the keywords are not strictly unique to a level. A teacher's lesson planning, which is critical to effective delivery, is guided by Bloom's taxonomy.

The six levels are briefly defined for a quick reference –
1. *Knowledge* – Exhibiting memory of previously learned material by recalling facts, terms, basic concepts, and answers. Some of the keywords employed to express thinking at this level are – define, select, list, recall, match, omit, show, spell, what, when, where, which, who, why.
2. *Understanding* – Demonstrating understanding of facts and ideas by organizing, comparing, interpreting, giving descriptions, and stating main ideas. Some of the keywords employed to express

thinking at this level are – explain, summarise, classify, compare, contrast, illustrate, rephrase.

3. *Application* – Solving problems set in novel situations by applying acquired knowledge, facts, techniques, and rules differently. Some of the keywords employed to express thinking at this level are – experiment, build, make, model, construct, organise, solve, apply, use.

4. *Analysis* – Examining and reconnecting information/experience to make inferences and state conclusions. Some of the keywords employed to express thinking at this level are – conclude, analyse, classify, categorize, simplify, contrast, inferences, examine.

5. *Synthesis (or Creativity)* – Creatively exploring information/ experience to seek new, alternate, better perspectives, patterns, or solutions. Some of the keywords employed to express thinking at this level are – recombine, re-estimate, represent, recompose, adapt, reconstruct, recreate, predict, theorise.

6. *Evaluation* – Defend, or refute conclusions by judging the validity of data, ideas, outcomes, and processes. Some of the keywords employed to express thinking at this level are – appraise, decide, criteria, criticise, approve/disapprove, recommend, prioritise, justify, defend.

For parents, knowledge of the keywords is a quick way to know the 'level of teaching, assessment, evaluation, and outcomes'.

Constructivism

Constructivism is basically a theory – based on observation and scientific study – about how people learn. While Montessori, Reggio Emilia, and Walldorf (discussed in a separate section) had profoundly enriched early-year education, constructivism contributed richly to middle and secondary education with the belief that every child can construct knowledge and create their own understanding.

Early man learnt through observations of events, patterns and experiencing things like fire, seasons, growing plants, etc. He reflected on those good or bad experiences. He built knowledge about everything that was needed for his life. Even for you, the parents, every new learning may change your beliefs, ideas, and experience or lead to unlearning, paving the way for the new or relearning. In any case, we, humans actively create our own knowledge. As parents, you need to do a few things to know how your children have been learning and how they are making use of the meaning of this learning.

Parents need to watch –
1. How curious is the child?
2. Does he/she ask 'Why? How?' questions?
3. Does he/ share any of the observations with excitement?
4. How does the child speak about observations?
5. Does the child say things like, 'I want to conduct an experiment', 'I want to make a car.'?
6. Does the child express the imagination in a made-up story?
7. Does the child suggest ideas like 'Mamma! Do this way!' or 'Show how to do it.'?
8. Does the child try to see inside toys, be it dolls or cars?
9. Does the child try to do project work on his/her own, or do they demand your help at every stage?
10. Ask questions relevant to children's lives and ask questions like, what do they make of them.

In a constructivist classroom, students are provided opportunities to engage in seeking answers to questions, explore, experiment

or interact with materials to make observations, explain their experiences, and elaborate by applying them to new situations. They are also encouraged to evaluate, reflect upon and provide evidence of their new understanding of the material.

Parents can seek to engage their children in reading by asking them a question, the answer to which could be found in the book. For example,

- Which scene or event in the book did you like and why?
- Do you recall any similar scene or event in any other book that you have read?
- If you have liked this book, find similar books and see if you like them.

Children's curiosity implores them to read, as it happens with Harry Potter Books for some children.

In their attempt to find interesting material, children, while reading, could find similarities and differences in story building. Reading could also deepen their understanding of characters and events in a play and help them understand how the plot develops, thereby enabling them to write a critical appreciation based on their understanding.

If you engage the children in a discussion, you will encounter interesting and often entertaining discussions. They will explain their understanding and thinking. As a parent, you can facilitate such discussions by posing questions relevant to what they read.

What parents should know –
1. In the constructivist classroom, children may question beliefs, traditions, and superstitions.
2. They may come out with their understanding of what they think is right or wrong. Appreciate and continue the discussion democratically.
3. It is important to share your family background with the school, so that teachers keep in mind the sensitives while framing a curriculum.

4. You must participate in curricular discussions and contribute to include real-life learning.
5. Feedback on the outcomes of your discussions helps teachers.
6. You must encourage your child to explore and find meaning in the knowledge he/she is acquiring.
7. You must encourage the child to apply his/her knowledge to new situations, which would help him/her with deeper understanding.
8. Working with the child on projects, just as a support and not as a doer, helps your child to be creative and innovative.
9. For your child to be able to develop his own understanding, the three questions you must ask as per context are – Why? How? What if?
10. The day you start asking the children more 'why?' (than their 'why?' to you), the reward of parenting will start to glow.

Both students and teachers are the evaluators of learning that is deeply rooted in observations, experiences, experiments, reasoning and modifications of thinking. Learning and teaching are not clearly distinguishable activities. Often the students work together in groups.

Thinking and support of thinking are the goals of education. Thinking is the 'subject' of every period spent in school.

The models presented show how students become central to learning with a teacher being on the side to facilitate and monitor learning.

Remember, now you know no less than any teacher! You're a certified co-teacher, almost!

Eminent educators

We will now talk about the educational philosophies of eight eminent educators as an extension of educational theories. The content of this section will enthral you – these are eternal truths, and you will identify with most of the thoughts.

Each of the chosen educational philosophers has a great amount of knowledge and insight on education – directly propounded by them and through numerous researches on their direct contributions. We picked only those contributions that will help parents and educators be on the same plane to facilitate informed and productive discussions and ensure sustainable and friction-free implementation of quality-focused educational interventions.

Socrates (470 BC–399 BC)

"The most important of all knowledge is 'how best to live."

Socrates was a renowned Greek teacher recognized as the father of Western philosophy. His beliefs on education were as follows –

1. Knowledge is the ultimate virtue, best used to help people improve their lives. People make immoral choices because they do not have the appropriate knowledge.
2. Teachers should engage students by asking questions. Ideally, the answers to the questions are not a stopping point for thought but, instead, are the beginning for further analysis and research.
3. Learners need to develop their critical thinking skills and engage in analytic discussion.
4. Students can improve their reasoning skills and ultimately move towards more rational thinking, logically supporting their ideas with increasing ease.
5. Education can be split into music and gymnastics with the belief that the subjects related to music develop the soul and the subjects related to gymnastics develop the body.
6. Children learn better through play. Playing sports teaches us virtues such as perseverance and justice. Helping students develop virtuous traits at a young age may be more beneficial

than inadvertently pushing them towards developing a hatred for learning.

Aristotle (385 BC–323 BC)

"Educating the mind without educating the heart is no education at all."

Greek philosopher and polymath Aristotle believed that education was the path to being fulfilled as an individual, stressing the significance of a clean ethical and political philosophy of life among educators.

He believed that –

1. The aim of education is not just the attainment of knowledge but also the attainment of happiness and goodness in life. Goodness has two features, 'Goodness of intellect' and 'Goodness of character'. The former increases by teaching, training, and experience, and the latter is a result of habit.
2. The most effective means for education are learning by doing and reasoning.
3. All-round and 'balanced' development depend on a mixture of play, physical training, music, debate, science, and philosophy – as they all have a part in refining the body, mind, and soul.
4. Curricular ideology should be focused on developing good habits and a spirit of sportsmanship; music and literature are useful for moral and intellectual development at an early stage of education.
5. Early education is the parents' responsibility, and further education is the state's (although parents will still be responsible for moral education during this period).
6. There are two strands of thinking and learning, the deductive method and the inductive method –
   - In the deductive method, we start with axioms (simple true statements about how the world works), using them to build our logical understanding of nature. If these axioms are true, everything else that follows will be true.

- In the inductive method, we start with many observations of nature to find a few key realities about how nature works.

Rabindranath Tagore (1861–1941)

"Everything comes to us that belongs to us if we create the capacity to receive it."

The Indian Nobel laureate Rabindranath Tagore himself had a unique education. He largely avoided traditional schooling and was trained in academics, arts, and sports at home.

Based on Tagore's experiences with his eclectic education, he believed –

1. Rote-based and book-centric education is not helpful. Students should be free of books and given a broader avenue for learning instead.
2. Learning should be deeply rooted in one's immediate surroundings, but connected to the cultures of the wider world.
3. Freedom can be categorized as freedom of heart, freedom of intellect and freedom of will. The education imparted naturally will lead to the actualization of these three freedoms.
4. The aim of education should be –
   - Self-realization
   - Intellectual development
   - Physical development
   - Love for humanity
   - Moral and spiritual development
   - Freedom
   - Co-relation of objects
   - Social development
5. Fine arts is an integral part of the educational curriculum. Sports, dance, music, drama, and painting should be included in the curriculum.

Albert Einstein (1879–1955)

"Imagination is more important than knowledge."

Considered as one of the most intelligent people of modern times, Albert Einstein's brilliance is most assertively displayed in the path-breaking theories he enunciated as a theoretical physicist. He did not conduct any experiments – it was all born out of his imagination and thinking prowess!

Being an accomplished academic, his thought-provoking insights into the education process are best captured through some of his quotes –

1. Information is not knowledge.
2. Education is what remains after one has forgotten what one has learned in school.
3. Pure Mathematics is, in its way, the poetry of logical ideas.
4. I have no special talent. I am only passionately curious.
5. Imagination is everything; Logic will get you from A to B, Imagination will take you everywhere.
6. It is the supreme art of the teacher to awaken joy in creative expression and knowledge.
7. Most people say that is it is the intellect which makes a great scientist. They are wrong, it is character.
8. Only one who devotes himself to a cause with his whole strength and soul can be a true master. For this reason, mastery demands all of a person.
9. No amount of experimentation can ever prove me right, a single experiment can prove me wrong.
10. All that is valuable in human society depends upon the opportunity for development accorded to the individual.

John Dewey (1859–1952)

"Education is life itself"

The American philosopher and psychologist John Dewey is perhaps the greatest educational thinker and reformer of the past century. His views include –

1. Learning is active. Children should come to school to do things and live in a community that gives them real, guided experiences, fostering their capacity to contribute to society.

2. There are two major conflicting schools of thought regarding educational pedagogy. The first is curriculum-centric and focuses almost solely on the subject matter to be taught. The second is learner-centric – content must be presented to allow the student to relate the information to prior experiences and use the inferences in their future experiences, thus deepening their connection with the core concept.

3. Teachers are responsible for achieving the goals of the school, but the specific topics to be studied to meet those goals cannot be determined in advance because they should be of the children's interest. The teacher is not in the school to impose ideas or make children form specific habits but is there as a trained and paid member of the community to guide and assist children in appropriately responding to their environment and making the most of their learning opportunities. The teacher's role is simply to determine, how the discipline of life shall come to the children based on a larger bank of experiences and riper wisdom.

4. Education should be balanced with interactions, reflections, and experiences in the community.

Bertrand Arthur William Russell (1872–1970)

> *"Education is learning to think for oneself under the guidance of a teacher."*

Bertrand Russell was a British philosopher, logician, mathematician, historian, social critic, and political activist. He was not an educationist in the strictest sense, but his larger socio-political contributions included discussions on many aspects of education.

He believed that –
1. Education should take the form that enables it to be available to all children.
2. The education system we should aim for is one in which every child is given the opportunity to attain the highest level of education in this world.
3. Society should not be divided into 'practicality' and 'embellishment'. Both types of knowledge should be provided. Children should acquire knowledge for material gain as well as intellectual pleasure. Education should have both utility and humanity as its components.
4. Learning to think independently is not an ability that comes easily. It must be acquired by dedicated personal effort and with the help of a mentor who can direct these efforts.
5. Children are not the means but the purpose. Educators must love children more than the nation or the church, or any other institution. What is required of the educators and what the children should acquire is 'knowledge dominated by love'.
6. Governments prefer citizens who support and preserve the status quo. Hence, the current education system is not suited for individual development.
7. The primary purpose of schooling is the development of character. Vitality, courage, sensitiveness, and intelligence must be included in education.

Paulo Regulus Neves Freire (1921–1997)

"Content must reflect the experience and issues of the participants (as defined by the participants)."

Paulo Freire, a Brazilian educator, and philosopher, is best known for his work 'Pedagogy of the Oppressed'. In it, he used the term 'banking' to describe the model of education in which the students are reduced to mere objects in an attempt to control their thoughts and actions, oppress them to adjust to the world, and inhibit their creative powers. He proposed the "problem-posing" model of education, in which knowledge results from a humane and creative process, to counter this.

The key aspects of his model are as under –
1. Education needs to be dialogic. Teaching and learning are a two-way process between teachers and students (as opposed to the 'banking' approach). Given that informal education is conversational rather than curriculum-centric, it should not involve one person acting on another but rather people working with each other.
2. Respecting the pupil does not mean leaving them gullible. It means acknowledging their ingenuousness and exposing them to it. Educators should not manipulate their pupils, but they should not leave them to their fate either.
3. Learning is seen as a partnership where the teacher's role is to help the learner develop into an independent, self-regulating individual.
4. As subjects, those who live in oppressive circumstances must "find their own voices", renaming the world as they know and experience, rather than blindly conforming with those in a position of authority.

John Holt (1923–1985)

> *"What is most important and valuable about the home as a base for children's growth into the world is not that it is a better school than the schools, but that it isn't a school at all."*

Regarded as the father of the modern home-school movement, American author and educator John Holt has greatly changed how we think children acquire knowledge and learning skills.

His influential ideas include –

1. Children are born learners. There is an inherent curiosity in all children even at birth; it does not 'start to develop' when they are put in school.

2. Children want to solve problems; they like to think. The problem is that parents and educators get in the way of this natural process by placing children in large, impersonal schools and by teaching a meaningless curriculum in an industrial factory setting.

3. What children need is not new and better curricula, but growing access to the real world in the form of time and space to think over their experiences, fantasy, and play to make meaning out of them, advice, and guidebooks to make it easier for them to get where they want to go and find out what they want to find out.

4. Children should be exposed to real-world problems of increasing complexity. For instance, Holt encouraged parents to expose their children to newspapers, letters, warranties, and yellow pages – anything tangible and visceral to promote their curiosity about the world. If we continually try to force children to do what they are afraid of doing, they will become timider and start using their brains and energy not to explore the unknown but to find ways to avoid the pressures put on them.

5. Students' ability to perceive and remember is hampered by the fear of failure, punishment, and disgrace, along with the anxiety of constant testing. This drives them away from learning.

6. Childhood observation of parental work would accelerate learning on the children's part, more than trying to absorb the information disseminated in the classroom by itself.
7. Forcing children to learn makes them unnaturally self-conscious about learning. It stifles their initiative and creativity since it makes them focus on pleasing the teachers with the answers they think will be best rewarded. Such situations promote 'fake learning'.
8. Living is learning – and when children live fully, energetically, and happily, they automatically, learn, even if we don't always know what it is.

Quality of education – The real form

One of the most disruptive social changes in the past decade has been the 'loss of the grace of grey hair'. Suddenly, age seems to offer no advantage in life or work, in fact, the dawn of the 21st century has created the illusion of an inverted relationship between wisdom and age.

Unearthing the fundamental interplay between (formal or schooled) education and (personal) wisdom holds the key to understanding the essence of quality in education.

Education was informal and community-driven before the mass-scaling of schools in the 1800s. In that scenario, the community members were all 'equally educated' – every child grew up living in the local and limited set of values, skills, and knowledge – everyone was certain of equally internalizing the shared context. Yet, no two people were 'equally wise' (wisdom was not 'similar' between any two community members) because incremental knowledge was welcome and appreciated and 'officially' added to the common pool of knowledge.

The lack of structure and limited scope/goal of informal education of pre-school era had an amazing impact on the development of children. Every child was free to hold a unique take on events or situations, and the community benefitted from these diverse observations and experiences. People's minds were not boxed into 'standard constructs', and learning was a life-long process (that mostly explains the association of wisdom and age). People gained more knowledge as they faced new situations, in line with the progression of age. In essence, wisdom was equivalent to 'self-learning'. Self-learning along with self-discovery was equivalent to life-long learning!

If we investigate our current educational system with this definition of wisdom in mind, we can easily explain our current predicament. 'Development of wisdom' is increasingly missing in our education. 'Schooled education' is not equivalent to ($\neq$) 'self-learning' capability and is not equivalent to 'self-discovery' or the

'ability for life-long learning'. As a result, 'school education' is not equivalent to wisdom.

The impact of a 'rigidly standardized' education system meant to reach out to 'one and all' is very loud and clear – limited capabilities and opportunities for 'self-discovery' or 'self-learning'. Expectedly, we see the increasing loss of direct association between age and wisdom and the diminishing respect for the 'experience gained over the years'. Long years of 'experience' are no longer translating into higher wisdom. For example, 10 years of teaching experience does not actually mean 10 years of continuous learning and self-development (given the essentially rigid curricular structure and resources). There is little 'learning on the job' or 'learning from new situations or needs' that is added back to the classrooms.

We are cramming up knowledge in search of wisdom. We are not engaging in any personal connections, interactions, introspections, or rich conversations around what we are taught. Thanks to the Internet, the seamless access to knowledge does not seem to have made people realize the futility of cramming in search of wisdom! Wisdom is a personal journey of exploration, observation, thinking, and expression; it is the only real thing!

Ensuring growing wisdom for every child is the real quality of education.

Quality of education – The formal form

Beauty lies in the eyes of the beholder. We all have our dreams and objectives to chase (ideally without stepping on anyone's toes). Fortunately, we all like and love different things as we find things to be beautiful in our unique way.

However, it hurts that every parent and teacher has a personal, wildly different take on its quality when it comes to education. Since we do not have a shared understanding of quality, there must be nearly 5 billion definitions of quality education – one definition for every adult.

Why does it hurt that we have disparate views on quality?

There is a standard of quality for almost everything around us, not in the least limited to air, water and milk. Quality must not be mixed up with product description. It refers to the generally accepted form of the product that can be consumed safely. There must be thousands of producers of water and milk around the world. The definition of quality remains almost the same for all producers/providers. Depending on local conditions, some aspects might differ across countries, but the quality definitions (better known as 'standards'), local modifications, and specific products/services must be distinctly quantifiable.

We have taken the liberty to discuss the transformation of the healthcare system (a domain very similar to education) towards a global definition of what a sound healthcare system is and data on the quality standards for air to emphasize the 'universal' nature of quality for almost all things that matter to a community.

Speaking of health, it is amazing to see how it has transformed itself in 170 years since the birth of the current form of school education (in the 1850s). There are dimensions of healthcare that are universally employed for measuring the quality of healthcare across nations, including the healthcare centre in the remotest villages in the Himalayas.

For example, life expectancy and child mortality are two of the universal measures of the quality of nations' healthcare systems. In 1850 in England and Wales, life expectancy at birth was 42 and 250 children per 1000, dead before the age of 5. In 2020, the life expectancy in the U.K. (that is, including Scotland and Northern Ireland as well) had almost doubled to 81.40 years, the number of children's deaths per 1000 before the age of 5 has reduced to 4.8 from 250.

We can say that the quality of the UK healthcare system has dramatically improved between 1850 and 2020, based on the universal measures of life expectancy and child mortality.

Next, let us look at the universal quality standard for air (as set by WHO).

Component	Annual mean (in microgram per cubic metre of air)	Other mean
$PM_{2.5}$ (PM – Particulate Matter)	10 µg/m³	25 µg/m³ 24-hour mean
PM_{10}	20 µg/m³	50 µg/m³ 24-hour mean
O_3	-	100 µg/m³ 8-hour mean
NO_2	40 µg/m³	200 µg/m³ 1-hour mean
SO_2	-	20 µg/m³ 24-hour mean 500 µg/m³ 10-minute mean

The WHO Guidelines also mention the reason for maintaining universal quality standards. By reducing PM10 pollution from 70 to 20 (µg/m3), air pollution-related deaths can be cut down by around 15%.

Naturally, it only makes sense that the education of children – an extremely critical social imperative for all of humanity – must also have some universal definition that we all must be aware of and

should follow. Of course, the local modifications in educational quality will be much higher than the products/services we make/ provide because education is deeply rooted in socio- cultural, economic, political, religious, community traditions, and technological evolution (among other things).

But how can we evolve a universal standard for quality of education? The education system can pick up quite a few lessons from nationwide healthcare systems – the characteristics of healthcare systems that have helped it to transform the quality of delivered healthcare!

Lessons from the Healthcare System

Education, health, and micro-enterprise are the three critical social infrastructure and 'fundamental personal rights'. However, health has come a long way in quality delivery at a mass scale, but education is still lagging far behind, comparatively speaking. It is obvious that in large and developing countries, healthcare also has a long way to go, but still the degree of commonality in the principles and practices of healthcare is very high across the world.

The following are a few comparisons between the education system and healthcare system that highlight what the former can incorporate from the latter –

1. Medical technologies, along with computers, have seen unprecedented integration and transformation using all kinds of technologies, powering a comprehensively new medical practice and infrastructure in the 20th century.

   The classroom of 1914 doesn't look much different from that of 2014, except for the superficial addition of a smartboard, but the teacher is still the 'sage on the stage'.

2. There has been a shift in the organization of healthcare system for mass reach – all patients start with a 'general practitioner', and thereafter a need-based escalation is available to several super-specialists and even a board of super-specialists.

Education has repelled attempts to create a layered approach to quality. The assigned teacher is always the last word on the subject, and the children have no way to dive deeper.

3. Health records stand transformed, offering comprehensive health status of every citizen at all times, a far more effective treatment for all.

Education's record-keeping is highly fragmented and vague, hiding more than it reveals. Students' performance records in a grade are treated as discreet information and considered mostly irrelevant by the teachers of the next grade (worse, teachers do form a 'general opinion' of students based on the previous grade's performance average).

4. Teamwork has evolved over the years in healthcare. Professionals with expertise in different domains work together as a unit to save even the most critical patients.

Education has largely ignored teamwork. A physics teacher will not invite math or a biology teacher to explain some phenomenon involving concepts from their subjects. Neither will the math or science teachers work together with the language teachers to help increase understanding of students through targeted language improvements. Thus, there is little support to 'slow learners', and every new academic year sees more children turn into 'slow learners'.

5. The micro-diagnostic reports help even an average doctor or medical assistant to diagnose effectively. The quality of healthcare at the primary and secondary level is now much less dependent on physically accessible doctors.

Most academic performance reports are still gross and are provided after the exams, leaving no scope for improving the performance. School education is dangerously teacher-centered.

6. Even heart surgeries have been super-analysed and standardized.

In education, we have not been able to standardize a single concept to get it right for all students. For example, even counting is not correctly taught in a vast majority of schools (it is not 'one, two, three,…', it is 'first, second, third,…'). The

procedure and practice of teaching a topic or concept is either ad hoc or continue unchanged in 150 years.

7. The flourishing pharma (generic and patented) and medical equipment industry co-exist with practitioners and hospitals in a formal setting, drawing on the strengths of each other to deliver the latest advancements in healthcare practices and drugs to the masses.

    The schools, supplementary education institutes and learning solutions (tools and content) providers are separated by a Chinese wall. Each views the other with suspicion and as a potential threat to the revenue stream. Except for the proliferation of electronic classroom hardware, there is, as such, little formal or informal exchange of ideas, practices, and learning in education.

8. Telemedicine and remote medicines have overcome access barriers for isolated communities, yet they are fairly personalised.

    Primary and secondary education have remained the reserve of brick and mortar schools and are delivered strictly under supervision and inside the boundaries of school walls. So much effort is made to ensure the delivery of education within the school premises that the percentage of marks required for passing a subject is much less than the percentage of attendance required.

9. Advancements in healthcare always come down to collaboration. The profound progress in medical sciences has been possible through the cross-institutional and cross-border collaboration of patient care with the best in medical education and research.

    As educational institutions work in isolation, advances in education delivery and practices have remained largely unchanged in the last 100 years. Cross-border and cross-institutional initiatives have remained limited to exchange programs for a minuscule fraction of students.

10. Last but not the least, the medical fraternity has identified the need to solidify the universal recognition of doctors' commitment to their work in the form of the Hippocratic oath.

Educationists have not yet devised an oath to adhere to. Unlike their medical counterparts, education practitioners are not bound to comply with a universal code to which they could be held accountable for malpractice and lose their license to teach.

Summing-up

By now, you would appreciate the need for a common understanding of a universal definition of quality of education (people from two different cultures and nations still have more things in common than not). This definition of quality must be valid for the education of anyone in the world and must help give rise to productive individuals and citizens who will contribute towards making a better world for everyone.

There will undoubtedly be some differences in the definition of quality across nations, societies, communities, and cultures to make it as relevant as possible for a particular setting. This is much like the variations in marriage and family norms across the world. Despite all the differences, the essence of these two social institutions is almost universal. The education system should be thought of as a similar social institution.

What is the universal definition for quality of education?

On the bright side, the definition of quality of education is uniquely obvious and simple –

It can be defined as how contemporary and relevant the education is in its vision, curricula, syllabi, textbooks, pedagogies, infrastructure, career discovery, and career (exam) preparation.

This is the essence of quality in a healthcare facility anywhere in the world – the doctors must be comprehensively contemporary in knowledge, and the tools and infrastructure must be as contemporary as possible. Why should school teachers, curricula, textbooks, and pedagogies not be contemporary across schools?

It is, therefore, surprising that this articulation of quality is almost completely missing across schools, school leaders, administrators, teachers, and educational products and service providers.

Features of the definition of quality of education

1. *It is intuitive*
2. *It is children-focused* – Aimed at growing them in sync with the times
3. *It is socially productive* – It promises to create productive adults and citizens; all will be contemporary and socio-economically self-reliant
4. *It is local* – By default, its contemporariness is not a global conception, it is contextual (i.e., as contemporary as the actual local context)
5. *It is malleable* – A community/school can define what is contemporary for them and tailor education accordingly

Apparently, this definition of quality must be widely adopted. But that's not the reality.

Is there more to this definition than meets the eye?

Yes. While quality is defined by the 'degree of contemporariness', the challenge in ensuring quality in education in current times is that we are at a unique juncture in our evolution – what is contemporary today may not be so, a few years down the line. Thus, quality education for our generation means educating our children so that the education they receive will still be relevant in the 2030s or 2040s.

Until the previous century, there was not much difference between decades as far as contemporariness of living and work was concerned – nothing much changed in decades, even centuries.

The issue in defining the exact quality goals is that not all of us can visualise the 'contemporary world' of the 2030s when the current generation of middle-schoolers will enter the career stage of their life.

What do we do today when there is such massive discontinuity in contemporariness?

Simple, go back to the basics! Go back to what we know for sure. If we lost our way on a network of highways at night, what would we do? We would first look at the fuel tank (assuming physical safety is not a matter of concern) to know how much fuel we are left with, as that will determine how much more we can drive without the need to refuel. We would not worry about tasks at hand upon reaching the destination. Similarly, in times of food crisis, the basics are simple – avoid going hungry, eat just enough to survive as long as possible.

What are the 'basics' in school education?

What do we go back to in school education in these times of tumultuous change? The only thing certain about these times is change, at an increasing pace, by the year.

And what does this imply? We will have to keep learning new ways of living and working.

And what kind of education is required to ensure we keep learning new things with ease? Language is the means of registering, retaining, expressing, and reorganising new observations, experiences, and thoughts. Clearly, we need to get the best education in languages.

And what languages are these? All aspects of our life and work can be understood if we gain command over three kinds of languages – the language of human communication (the natural languages) needed to express and understand each other in everyday routine, business, science; the language of logic and reasoning but involving quantities (math); the language of the senses – art/music/dance/theatre/play, etc.

Indeed, if all our children can succeed in the three languages, there is nothing they cannot learn in school, and for all times later, in life.

The 'basics' in education – the three languages –

1. *Genetic language* – Art, music, dance, plays, theatrics (non-verbal) – we are all born with the ability to communicate/

associate with music, dance, etc.; for example, all of us get into the groove of any kind of music we hear (music is science – some notes are more melodious than others). Musical notes are now a part of human genes.

2. *Mother tongues* – very rich in creative presentation of thoughts and feelings and offer amazing creativity/flexibility in 'reading between the lines'

3. *Mathematics* – The only universal language – the most precise of all languages. It is the language to express quantities of all kinds and variations.

In other words, no child can be left behind in appreciating, understanding, and communicating in these three languages. Success in science, social science, and other natural languages will follow by default.

The current school education system

The following listing presents a broad appraisal of the current state of the school education system –

1. The cost of school education has spiralled way beyond the economic capacities of governments and parents (where parents pay the tuition fees). In fact, tuition fees are often around 20-25% of the total cost of education to parents.

   Schools are reducing themselves to being the fringe players in the 'business of schooling'. They are starting to transform into 'institutionalised extended homes' or 'long-duration pre-finishing schools.' Not only are schools failing in serving their true purpose, at this rate, they may cease to be relevant in the long-term.

2. Schools are too regimented to register and build on the critical differences in their students' educational contexts, such as their preferred learning styles, parental attention, environment and resources at home, parental education background, social and religious context, and personal aspirations.

   As a result, the education system is too generic and broad, so it is easy for students to fall 'out of sight'. Schools need to go back to the drawing board to be redesigned to ensure the overall development of EVERY student.

3. On average, the world, the schools, and the parents are almost equally clueless about how children learn. All we know for sure is that under certain conditions, the learning outcomes are better.

   Educated parents hold the key to the partnership with schools for the much-needed transformation in the quality of school education. The dichotomous 'blind-faith' or 'no-faith' attitude (in the school system) of today's parents is harmful and unsustainable for the children.

4. Schools have 'accepted' the complete responsibility of teaching children EVERYTHING – scholastics, co-scholastics, values, morals, socio-emotional skills, life skills, competitive exam preparations, and more. How can we expect schools, with their

limited timetable and academic-subject staffing to do justice to such a layered education?

Schools cannot be faulted for this increasing mandate, in fact, they are trying to be as gracious as possible. Society and governments are responsible for pushing these roles onto the schools. Families and communities need to think harder about defining their roles along with that of schools, in the overall development of the children.

Most schools still work as if the measures of academic achievement are the 'be-all and end-all' goals. However, that is not the case. These are only a part of the foundation, especially in today's evolving and dynamic context.

5. Schools are meant for students, parents, teachers, trustees/administrators/governments, alumni. However, the message we receive time and time again is that schools are meant for teachers (and principals and management). School processes are primarily designed to suit the convenience of teachers. Laws mandate no accountability towards the schools or teachers. On a global level, the teachers' unions dictate key educational reforms!

A revolutionary transformation is needed to place families at the heart of school education.

6. Like the best colleges and universities, schools compete to attract children who would get admission offers from multiple schools. Rather than focusing on educating children, schools focus on admitting children who will succeed because they are smarter, or their parents can invest in resources to make them seem smart. School administrators, leaders, and teachers are well aware of the '(limited) system capabilities' of schools. Worse, students who are gifted in aspects other than academics, such as arts, sports, music, etc., are marginalised and often labelled as 'slow learners' by the schools.

Schools cannot be allowed to pursue such socially detrimental practices as they are a family's only assurance for securing the best education for their children.

7. School education does not serve as an appropriate precursor to higher education and vocational education. Schools do not involve their teachers in career exam preparations or routine higher education qualifiers such as IIT JEE, SAT, TOEFL, ACT, etc. They cannot even prepare students for merit scholarship award exams like NTSE. Preparatory efforts for such exams are outsourced as children seek supplementary inputs on their own. Schools must be the only educational institution in children's lives besides family and community.

8. Schools were created to support the industrial society. However, while the industry has moved from quality control to quality assurance, schools are still stuck with quality control and continue to check the students' quality at the end of 14 years.

    In comparison to quality control, quality assurance is a different ball game altogether. Quality assurance is not just checking the quality of the final product, but it is the maintenance of the desired levels of quality at each stage of the production process. It is designed to ensure that the products are free of faults.

    Schools operate for quality control but fail to achieve even that (there is no quality pursuit for all children, really speaking) – and quality assurance is not even on the table; in fact, remedial inputs in schools are one of their best-kept secrets.

    The 'quality control-centricity' of schools must end. This calls for comprehensively new curricular resources for schools, such as new textbooks, assessments, evaluations, and remedial actions for all students to succeed.

9. Governments almost have a stranglehold on school education. While schools can do much better than the current scenario, they certainly do face strong and continuous headwinds in doing their job.

    Parents and communities must make liberalization of school education the topmost political priority.

10. Most notably, all of the aforementioned characteristics are true for any school in the world. The school education system is overburdened on a global level.

This makes a revolution in school education an urgent need for humanity as a whole! If there is any hope of creating a just, equitable, fair, and sustainable society for humans on earth, then a new- age school education system lies at the heart of it. This is because good quality school education is all we need for EVERY child – the best higher education need no more be limited to college or university classrooms!

To summarise, schools are stuck in the age-old contexts of their origin. Educated parents hold the key to transforming education.

It must also be mentioned that the conception of student-centric approaches in school education is nearly a century old, and all the leading educational thinkers of the 20th century extensively experimented on it and promoted it. However, the change could not go beyond the experimental schools.

We strongly feel that over the past century, the main missing ingredient has been technology that could enable the student-centric approach.

The technological pre-requisite for student-centricity in education are –

- The personalisation of teaching and learning processes and resources at the level of every student
- The seamless access to the processes and resources at school and home for every student

The twin pre-requisites cannot ever be realised except by creating a world-class virtual school with the most extensive processes and resources for the 'new-age pedagogy'. Governments worldwide have been shy of this transformational imperative, leaving it largely on the shoulders of parents and private schools.

Origin of the current school system

The origin of the school system as we know it can be traced back to the early 18th century Prussia, Germany. The first school for mass education (education for all the children in a community – hence termed 'public school') was created in 1716 by King Fredrick William I as a vehicle of consolidating his hold over the Prussian nation. Taken a step ahead by his son King Fredrick The Great, public schools were explicitly designed to consolidate imperial power. Leading American educator and thinker John Taylor Gatto (1935–2018) aptly describes the Prussian thinking of that time as:

> '*The Prussian mind, which carried the day, held a clear idea of what centralized schooling should deliver –*
>
> ➤ *Obedient soldiers to the army*
> ➤ *Obedient workers for mines, factories, and farms*
> ➤ *Well-subordinated civil servants, trained in their function*
> ➤ *Well-subordinated clerks for the industry*
> ➤ *Citizens who thought alike on most issues*
> ➤ *National uniformity in thought, word, and deed.*'

The area of individual volition for commoners was severely foreclosed by Prussian psychological training procedures drawn from the experiences of animal husbandry and equestrian training and taken from the past military experiences.

Noted American educator Richard Thomas Alexander (1887–1971), in his historic study of the Prussian education system, wrote that the whole scheme of the Prussian elementary school education was shaped with the explicit purpose of making ninety-nine out of every one hundred citizens subservient. The elementary schools of Prussia were fashioned to make spiritual and intellectual slaves of the lower classes – the common citizens.

This schooling system was first brought outside the 'Germanic world' (namely, Prussia and Austria) by the USA in the 1840s by Horace Mann (1796–1859), the father of American public schooling. From there, it travelled across the world – including Japan. It is

interesting to note that, in 1852, the state of Massachusetts, USA, passed the compulsory school attendance law for all children between ages eight and fourteen. There was a penalty for not sending children to school, and the violators were to be prosecuted by the city. By the early 1870s, enforcement of the law included the appointment of officials to monitor and prevent absences.

A new education model for the society had to be built to create a rapidly growing need for industrial workers (out of farmers and craftsmen). It was realised that millions may have to be educated because most may just fail in the education system. The only option– a depersonalized, uniform, large, and rigid education system, as seen in the Prussian system. The model was the cheapest and easiest way to teach literacy on a large scale.

While the best and the brightest were carefully groomed for leadership positions, the majority were relegated to a monotonous education of rote learning and obedient 'task completion'. Over time, the larger social good became the popular face of the public-school system. Schools became vital to economic development and in democratizing the participation of all citizens.

As described by the renowned American curriculum theorist Herbert Kliebard (1930–2015), social efficiency became an urgent mission in the educational world. Schools were not about intellectual development. To teach beyond what someone had to know to perform as an industrial worker was simply wasteful. Individual growth was to be surrendered for the greater good of optimizing societal gains.

Interestingly, the control over process and resources was applied to the work and conditions of teachers as well; the Prussian model was too right for anything mass scale. Supported by the industrial leaders of the early 20th century, it was in the interest of social good that these sacrifices were made. Sincerely, the whole idea of industrialisation was indeed too grand to worry about the limiting human faculties and capabilities, be it, students or children. Thus, much like the industrial workers, teachers weren't expected to exercise 'individual judgment' in transacting defined textbooks,

assignments, and assessments. The entire teaching methodology and resources were rigidly codified.

A very strictly defined input emerges if we go back to what John Taylor Gatto adds to the context of schools in the late 18th century and the early 19th century –

> *"Under Frederick William II, Frederick the Great's nephew and successor, Prussian citizens were deprived of all rights and privileges. Every existence was comprehensively subordinated to the purposes of the State, and, in exchange, the State agreed to act as a good father, giving food, work and wages suited to the people's capacity, welfare for the poor and elderly, and universal schooling for children."*

Furthermore, this simplified model of work-oriented schooling was given additional support by the new domain named 'educational psychology'. Influenced by Charles Darwin's theory of evolution, psychologists like the highly-talented English, the Victorian-era polymath, Sir Francis Galton (1822–1911), perpetuated the notion of genetically transferred inherited intelligence, arguing that children of poor, immigrant, or minority parents may be ineducable.

Such thinking was further amplified by other prominent psychologists like H. H. Goddard (1866–1957), who went so far as to propose mass sterilization for the 'lower elements' of society. A group of educational psychologists in the early 20th century seemed to propagate that

> *"No amount of education or good environment can change a feeble-minded individual into a normal one any more than it can change a red-haired stock into a black-haired stock".*

Our school system is still locked into the Prussian industrial framework that is impersonal, dictated, boxed and too process driven. For both students and teachers, the emphasis is on procedure rather than innovation, uniformity rather than individual expression and control as opposed to empowerment. It is therefore not surprising that most classrooms have changed little in over two hundred years.

Looked at from this perspective, public schools are not failing. They are faithfully producing the results they were designed to generate of adequately literate and largely obedient industrial workers. In fact, public schools have succeeded well beyond their original purpose. Despite tremendous advancements in technology, human rights, and social awareness, the system engineered in the 1760s by King Fredrick the Great, still succeeds in dampening the creative spirit of its students, fostering mediocrity, and ensuring a subservient population.

Current schools are factory-like institutions

The current school system was mass-scaled in the 19th century to meet the needs of the industrial economy. An instrument of the fast-expanding industrial society of the early 19th century, schools could not escape being built on the new-found principles of industrial organization. We cannot really understand the schools of today without knowing the key features of the industrial revolution.

The two defining facets of industrialization are as under –
1. Developing machines that fed on mechanical power (usage of the steam power to operate machines), moving away from the dependence on the biological power of men or animals. The use of mechanical power helped multiply the scale of operations, and this system had matured by the early 19th century.
2. Inventing the assembly-line system (brought to prominence by Ford Motor Company) took quality in mass-production to the next level. It implemented 'scientific management' on the shop floors to optimize production. This system was well adopted by the early 20th century. 'Factory' is the common name for the assembly-line system.

What is the key characteristic of assembly lines, a factory?

These can only produce 'exact copies' of a small set of product variants. The highest productivity is achieved when there are no variations in the product and all products are exactly of the same type.

Why is industrialization put on a very high pedestal in human development if it killed the diversity of choices?

Industrialization made scale and efficiency possible. Mass production provided access to a better quality of life to an increasingly large proportion of communities worldwide. Industrialization was a clear trade-off between affordable, lower-quality, accessible, and new products versus expensive, high-quality, made-to-order, customised, and esoteric products. The issue of industrialization's impact on the quality of life may be debatable, but it certainly did make essentials more affordable and accessible to people worldwide.

How do schools resemble factories?

Here are some of the comparable features of factories and schools –

1. Fixed-step assembly line – Just like production required a standard fixed-step process, every student must go through the standard curriculum and progression system for 14 years to emerge 'finished'. Gifted children can leave the school system, but the system will make no exceptions.

2. Soap is soap in any part of the world. Just like soap production in any part of the world follows the same standardised process and steps, children are forced to follow similar processes and steps with minimal variation, irrespective of their geography.

3. Products come 'identically wrapped'– Just like all products are wrapped identically for external proof of consistency, students are made to wear uniforms and use similar bags, buses, textbooks, and notebooks.

4. Standard quality benchmarks and certification– Just like products are assessed on specific predefined standards, children are assessed on identical pre-determined benchmarks.

5. Clockwork operations for efficiency– Just as factories are focused on following timelines and shifts, school life revolves around timetables and schedules.

6. Each step is an independent unit of efficiency. Just as each step is an individual unit of efficiency on its own at factories, each subject and its teaching are also independently optimized for schoolwork.

Since the current system serves the old and currently irrelevant goal of efficiency, there is an urgent need for the system to change along with the times. There have been some attempts to model the modern education system as a more open-minded and accommodating structure – many schools have started adopting the Montessori and Waldorf schooling methodologies, which allow children to grow at their pace, based on their personal interests. However, these changes represent a tiny proportion of schools and are far from perfect.

While social context has changed, schools have not

We have already discussed the context around the origin of the current schooling system. In this section, we will explore why schools adopt a teacher-centric approach. A critical appreciation of the current school system demands a nuanced understanding of the extreme teacher-centricity of schools and the consequent inability of the school system to become child-centered and help children become learners.

Briefly, no one can be taught to be a learner. Teaching has to end for students to start 'learning to learn'; teachers have to be co-learners (anyway, teachers aren't learners themselves).

In this section, we will explore the roots of schools as an organ of society, which helps to perform certain tasks for society. We will also explore the dissonance between the current state of society and the current state of schools.

The origin – the state of society in the 1820s (around the time formal K–12 started taking shape)

The state of society in the industrialising world of the 1810s, when the current format of schools started to gain currency, can be listed as below –

Unschooled parents
Books as the only vehicle of widely sharing knowledge
Beginning of a 'new era' – the industrial revolution
Deeply entrenched 'family – trades'
Less stratified
Tightly knit

The educational needs of the young in a society are a direct function of the particular conditions of the society. When we delineate the educational imperatives against each of the characteristic 'state of society', the organic linkages between the two become evident.

The following is a list of such educational imperatives –

State of the society in the 1820s	Educational imperatives as dictated by the state of the society
Unschooled parents – neither children nor parents could read or comprehend text.	Schools were to be the non-discriminatory institutions for learning academic subjects.
	Parents could not be expected to transact syllabus contents at home.
	Teachers were the sole 'illuminators' of the syllabus content.
Books were the only source of sharing knowledge on a wider scale.	Textbooks were the new Bible; the end-all of knowledge.
Rise of a 'new era' – the industrial revolution.	Mass-scale preparation of manpower for the new economy. Incidentally, in a group of students, the gifted children were not lucrative enough targets to attract extra focus on their nurturance.
Deeply entrenched 'family-trades'.	Not everyone needed to succeed in school. Failing students could fall back on their family trade. No career preparation was needed in schools – a school leaving certificate could qualify one to become an industrial worker.
Less stratified.	Less diversity in the goals to be achieved out of school education, schools were created for limited objectives – namely, academics.
Tightly-knit society.	Values, enculturation, etc., could be a part of the responsibility of parents and the community; schools did not need to focus on life skills and value education.

Having established the direct connection between 'state of the society' and educational imperatives for the society, let us start with a comparison between the state of the society in the 2020s (current) and 1820s (200 years back to the time of the start of mass education through schools). Naturally, we should expect to see a fairly stark contrast between the state of the society in the 1820s and 2020s, as is listed under:

State of the society in the 1820s – the emerging industrial society	State of the society in the 2020s – the emerging knowledge society
Unschooled parents were in the overwhelming majority.	Schooled parents are in the majority.
Books were the only source of shared knowledge, and very few could write books.	The Internet is an amazing storehouse of knowledge, available 24 x 7, and just about everyone is contributing some form of content to it.
Rise of a new era – the industrial revolution.	Rise of a new era – knowledge revolution.
Children were expected to join deeply entrenched 'family trades', schools did not have to prepare students for specific careers, school leaving certificate could get one an apprenticeship in any career of one's choosing, including being an industrial worker.	Children are free to pursue liberal professional goals. Career preparation starts early in schools as school leaving certificates are not enough to pursue a specific career.
Less stratified.	More stratified – there are many more lines of differentiation within society and in professions.
Tightly-knit society.	Loosely-knit society.

Societies across the world have greatly transformed between the 1820s and 2020s.

The changing social context demands changes in the way schools function.

The table below captures the changes needed in the school education system to reflect the changes in the 'state of the society' in the 2020s –

State of the knowledge society (that is, state of society in the 2020s)	The new educational imperatives for schools in the 21st century
Most parents are schooled.	Parents should participate in academic education. Progress reporting systems must enable parents to support actively their children in their education.
	Homework need not be a repetitive extension of classwork; it can be used for learning and reading ahead.
Most parents may be schooled, but they are 'effectively unschooled' to take care of their children's academic demands.	Students to be groomed as self-learners with access to the Internet's vast and intelligent resources.
The Internet is practically an infinite source of knowledge.	Reading skills and digital literacy are needed to search for information on the Internet, thus supporting knowledge development far beyond what books can offer.
The advent of the knowledge revolution.	As 'knowledge' is now a commodity, being able to synthesize knowledge is a valued ability – focusing on multi-disciplinary knowledge acquisition is the key.

The emergence of numerous liberal professions – children are assertively seeking to pursue liberal professional goals.	The overall development is the new imperative. Career preparation must start early, but in a broad-based way.
More stratified – many more lines of differentiation within a society.	Schools should be able to meet the educational needs of every student and achieve this goal by using diversity in classrooms (and homes). A close partnership with parents is vital.
Loosely-knit society.	Schools must find new ways to reinforce certain community and constitutional values within the constraints of the highly diverse value system of the student pool.

You would think that educational practices would have changed given the rapid changes society has seen, but the following table comparing the practices of the 1820s and 2020s might surprise you:

Educational practices in schools in the 1820s	Educational practices in schools today, the 2020s
Teachers had to read and complete the entire syllabus.	Teachers still have to 'finish' the syllabus!
Homework was made repetitive: A few questions were done in school, the rest following the same pattern had to be done at home.	Homework is repetitive: A few questions are done in school. The rest, all similar, are to be done at home.
Parents were only nominally involved, receiving gross, 'action-less' progress reports.	Parents are still only nominally involved, receiving gross, 'action-less' progress reports.
Textbooks were the 'Bible' for the content to be learnt.	Textbooks remain the 'Bible' for schools, even the 'smart content' being used are like textbooks.

All the focus on academic domains, little direct focus on overall development	Over 80% of the periods in the timetable are still academic, leaving little time for overall development.
The 'failing' children were not the schools' responsibility – If children 'failed' it was because they were 'slow learners' by birth and had received poor parenting.	There is little change in the systemic response to failing children as schools continue shirking their responsibility towards them: Children and parents are the ones entirely at fault for 'failed' children even after 14 years of schooling.
Schools were not focused on students' overall development.	In a small minority of schools, there is an increasing focus on overall development, but at the cost of academics. In real terms, academic education has worsened – a change for the worse compared to the 1820s! And in these times of high sci-tech, if overall development is only founded upon academic excellence, then it is not overall development. Effectively, overall development is only for the sake of the name. Not to forget, schools do not have the teaching resources for 'overall development relevant for the times'.
Schools just needed to reinforce the widely-held societal practices and values. This mostly happened by default because most teachers deeply subscribed to the same set of societal practices and values.	Not only are schools unable to reinforce widely varying practices and values, but they also end up diluting the values dear to individual families – a change for the worse compared to the 1820s!

We can clearly see the changes required, but they have not been reflected in the education system. *We continue following the age-old teacher-and-textbook-centric practices.*

More specifically, parents continue playing a passive role in this system. The collaboration of parents and schools in children's education has been rather sporadic and undefined.

The table below compares parents' role in the 1820s and the present day –

Schools' expectations from parents in the 1820s	Schools' expectations from parents in the 2020s
Their involvement in academics	
Parents played a passive role. This was quite by design as they were not formally educated and the progress reporting systems were very parent-unfriendly – gross, unactionable, post-assessment, periodic. Additionally, the 'unfriendliness' did not hurt parents in those times as they could not imagine any use of specific inputs	Parents are still expected to play a passive role. They may be well-educated now, but they are too busy and, in fact, do not mind being passive figures. Schools have certainly changed, but not in terms of improving their content and process of progress measurement, analysis and reporting for parents.
As the support system at home	
'Ensuring' that the homework is completed. This essentially meant inculcating the discipline of completing the educational tasks meant to be done at home.	The destination is the same, but the route has changed: Parents now seek tuitions for helping their children complete homework and make, or worse still, buy project assignments off the shelf. All this does is encourage disrespect and breaks, the cycle of learning.
At parent-teacher meetings	
PTMs were just a formality as schools could not expect much remedial support from parents, given that most were uneducated.	PTMs today, counterintuitively enough, are still a ritual and largely wasteful interactions even though many parents are educated and could gain a lot from thoughtful, extensive and data-driven 'micro reports' and PTMs.

The overall responsibility	
The responsibility is unfairly shared: Schools are not responsible for 'poorly educated' children.	Even today, any unfavourable outcome after 14 long years of schooling is 'naturally' pinned on the parents and students.
Life skills	
Teaching children values and attitudes were entirely the parents', kinship's, and community's responsibility. Reinforcement of values by schools happened almost by default as all teachers and students shared key values.	Parents' role in value education cannot change, yet parents have passed on the task of value education to schools, but schools are failing because the students and teachers' values could not be more dissimilar.

As we can see, the entire context of society, teachers, and technology has changed, but **schools, teachers, and parents continue to play the same old role in children's education as in the 1820s.**

The design flaw in schools

As we have already discussed, the current format of schools was created to spread formal education on a mass scale – from royalty to ordinary citizens. However, rich families continued home-schooling their children with accomplished persons as private tutors long after schools had come into existence. One of the primary reasons for this was the quality of education in schools.

Schools were aimed at 'educating' as many students as possible. Their focus was on following fixed procedures to share prescribed knowledge with the maximum number of students and did not care about individual students.

Expectedly, the entire ecosystem, right from the teaching methodologies to progress monitoring systems, was aimed at educating the masses in an efficient manner. All students were given the same resources in the form of teachers, books, and teaching techniques, irrespective of their abilities and context. As it happens, in all natural systems, the same input did not generate the same output from all students. Hence, despite being a part of the same structure, some students managed to excel, whereas most others suffered.

To ensure a high-quality learning outcome among all students, it is essential to provide them with personalized attention, especially where assessments are concerned. Detailed assessments at an individual level allow for proper remedial interventions. However, in the 19th century, it was not logistically possible to conduct such a detailed assessment of students. Additionally, there was limited recognition and need in the society of the advantages of honing individual personalities.

However, we have evolved as a society to celebrate diversity and equality for all, but our schools have not transformed in accordance.

As a result, schools continue to monitor student learning at very gross levels –

1. Since schools, on average, manage to assess only 1/3rd of the total concepts taught in a year, they do not have an accurate sense of any child's overall progress and understanding.

2. Marks and grades of numerous assessments in a subject are

aggregated for convenience, but students scoring the same marks/grades have widely varied knowledge in each subject at the level of individual concepts.

We certainly know that two students with an 85% score in an exam cannot be recommended the same strategies to improve. More likely than not, at the level of concepts, the two have different strengths and weaknesses. But, both will get the same recommendation from their teacher – 'work harder' (but where to put more effort), 'you just make calculation mistakes' (but who doesn't), or 'write more elaborately next time' (but how does one do that unless one is specifically shown how to).

3. Because of the system of aggregated scoring, remedial actions are also planned for a group of students at the level of a subject or chapter. However, conducting remedial classes with the same content for all students scoring low in a particular subject will not help any of them.

There is a flaw in the design; schools can't do better

While this system seems flawed today, as discussed earlier, the objective of public schooling and the resources available in the 19th century only allowed gross assessments. Personalizing the school experience for each child to enhance their learning outcomes was impossible.

The schools have a design flaw – a fundamental limitation – schools were designed for mass literacy and numeracy in a faceless manner. For schools, it didn't matter who topped the charts, as long as some children did. Schools did try to make a difference to as many students as possible, but there has never been any emotional attachment to the goal, quantitatively (how many do better) and qualitatively (who all do better).

However, we now have the (information) technology to personalize such experiences cost-effectively – to undo the fundamental shortcoming of the school system. But school system as a whole has been very slow in innovatively adopting technology to overcome its fundamental limitation of gross teaching and impact. In fact, the

entire school ecosystem has largely remained complacent and failed to capitalize on new and emerging innovations.

The design flaw – a reality to date

Let us now specifically explore why the challenge of attending to every student was unsurmountable then and remains as challenging today, except for elusive innovation in harnessing information technology for effective learning and success of every student.

We can best explore this challenge with a practical example of how this lack of attention on every student is still so rigidly embedded in the current educational system.

For the sake of convenience, we plan to illustrate it using the science syllabus of Grade VIII in the Indian national curriculum.

Here is the list of all the science chapters in the Grade VIII syllabus –

Chapters in Class VIII Science Syllabus	
1. Crop Production and Management	10. Reaching the Age of Adolescence
2. Microorganisms: Friend and Foe	11. Force and Pressure
3. Synthetic Fibers and Plastics	12. Friction
4. Materials: Metals and Non-Metals	13. Sound
5. Coal and Petroleum	14. Chemical Effects of Electric Current
6. Combustion and Flame	15. Some Natural Phenomena
7. Conservation of Plants and Animals	16. Light
8. Cell-Structure and Functions	17. Stars and the Solar System
9. Reproduction in Animals	18. Pollution of Air and Water

Out of these 18 chapters, 'Sound' has 13 distinct learning outcomes, or concepts, as listed below –

Key concepts in the chapter 'Sound'	
1. Sound as a form of energy	8. Characteristics of Sound
2. Sound produced by Humans	9. Audible and inaudible sounds
3. Medium of sound propagation	10. Sound produced by animals
4. Speed of Sound	11. Use of ultrasonic
5. Ear, the sense organ for hearing	12. Production of sound – Musical instruments
6. Characteristics of vibrations (Oscillations)	13. Noise pollution and control
7. Relation between Frequency and Time period	

Next, assuming each of the 18 chapters have 12 concepts on average, we reach a figure of nearly 200 concepts to be taught in an academic year in Grade VIII.

> **The volume of content in science syllabus of class VIII**
>
> **Total number of chapters**   **= 18**
> **Number of 'new' concepts introduced in a chapter**
>   **= 10 – 15**
>   **(on average – 12)**
> **Total number of 'new' concepts**   **= 18 × 12**
> **Introduced in science**   **≈ 200**

Now, let us turn our attention towards teachers. Each teacher, on average, manages 5 sections with 25 students each (a scenario typically associated with the 'best of schools' in terms of teaching load and class size). Hence, a Grade VIII science teacher will be teaching, evaluating, reporting the progress, and remedying 200 concepts to each of the 125 students.

A detailed progress report of this grade, for all 125 students, would look something like this –

Ideal design of the Science progress report for all
sections of Class VIII 125 students representing all sections

	Neha	Sachin	Sanjay	Manish	
Sound as a form of energy	✓	✓	×	✓	………
Sound produced by Humans	✓	×	✓	✓	………
Medium of Sound propagation	✓	✓	✓	✓	………
Speed of Sound	✓	✓	✓	×	………
Ear, the sense organ for hearing	✓	×	✓	✓	………
Characteristics of Vibrations (Oscillations)	✓	✓	✓	✓	………
Relation between Frequency and Time-Period	✓	×	✓	✓	………
Audible and Inaudible Sounds	✓	✓	✓	✓	………
Noise pollution and Control	✓	✓	×	✓	………

(left margin label: 200 rows representing the 200 key concepts of science)

Thus, 25,000 unique student-concept pairs would be measured, recorded, reported, and taken cognisance of in decisions regarding remedial interventions, etc. It is easy to visualise what an impossible task it would be for any teacher to assess, record and analyse 25,000 unique student competencies. The 25,000 unique student competencies records could easily swell to nearly 50,000 for many bigger or understaffed schools.

> **Every teacher has to 'teach' 200 concepts and assess 125 students on each concept**
> **Thus, every teacher must monitor 200 × 125**
> **= 25,000 <u>concept-student pairs</u>**
> **For many teachers the relevant number is 50,000 student-concept pairs, handling 5-6 sections of 40+ students in each section.**

Furthermore, a good teacher at a good school will assess students' competency at multiple levels for each of the 200 concepts.

For example, a four-level competency achievement could be –
1. Knowledge level
2. Application level
3. Competitive level
4. Project/experiential/activity/demonstration level

The levels are organically linked, but schools must assess them separately because of the diversity in students' understanding and goals.

Effectively, it does add up to 1,00,000 competencies (4 × 25,000), or even 2,00,000 competencies (4 × 50,000) in the case of bigger schools.

To make this herculean task manageable, schools were designed with a more realistic achievement assessment measurement. The students' progress was measured in terms of 6-8 annual tests/exams (two six-monthly exams and two tests in each of the six months). Each test/exam reported just one number/grade for every student. Thanks to this, just 750 competencies (6 x 125) has to be monitored for all the students! These marks are the ones visible on the progress reports of students and this hasn't changed in 200 years!

Common format of School Report Card

	Test 1	Test 2	Exam 1	Test 3	Test 4	Exam 2
Science	8/10	17/20	56/70	9/10	14/20	60/70
Math	—	—	—	—	—	—
English	—	—	—	—	—	—
Hindi	—	—	—	—	—	—
Spanish	—	—	—	—	—	—
Art	—	—	—	—	—	—
⋮	—	—	—	—	—	—
⋮	—	—	—	—	—	—

While this made it easier to manage all the students, it prevented the system from identifying the needs of individual children and addressing them effectively. Consequently, most children struggle in schools, and no teacher, parent, tutor, or counsellor can help them once they start struggling in academics because no one knows any better.

Schools do not even make an effort to offer student achievement documentation by the grossest unit of teaching – chapter. The bare minimum assessment and achievement feedback must be something like this –

Format of Chapterwise Progress Report Card

	Ch 1	Ch 2	Ch 3	Ch 4	⟶ Chapters
Science	17/20	11/20	14/20	19/20	....
Math	—	—	—	—	....
⋮	—	—	—	—	....
⋮	—	—	—	—	....
⋮	—	—	—	—	....
⋮	—	—	—	—	....

Incidentally, the ideal progress report in schools should look like this (for a Grade VIII student) –

'Micro-progress' Report card
Grade VIII

Algebra ≈ Grade VII

Geometry ≈ Grade V

Motion ≈ Grade V

Light ≈ Grade VI

Electricity and magnetism ≈ Grade VII

Cells ≈ Grade VII

Plant systems ≈ Grade VIII

Animal systems ≈ Grade VIII

Elements ≈ Grade VII

Chemical reactions ≈ Grade VIII

Physical properties ≈ Grade VIII

English Grammar ≈ Grade V

Written Hindi ≈ Grade IV

Historical analysis ≈ Grade V

Historical knowledge ≈ Grade V

Historical stories ≈ Grade VI

Land mass ≈ Grade VI

Water mass ≈ Grade VII

Habitations ≈ Grade VIII

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This kind of personalised monitoring of learning is needed. To the best of our knowledge, no school in the world has achieved such a progress reporting system. We call this reporting system as 'Micro-progress Reports'. This is possible now due to technology. It is the most impactful use of technology (not AR, VR, gaming, etc.).

Alarmingly, not only do students continue to be assessed at a gross level but other stakeholders too, such as teachers and principals, are assessed in an even more subjective manner. Micro-progress reporting will also revolutionise teacher evaluation and transform the quality of teachers and teaching.

To reiterate, this is what we call the design flaw in schools – the very architecture of schools' teaching is limited in its ability to focus on each student. Schools are designed keeping 'mass and standard' education in mind, and all its processes and methodologies are adapted around this. Governments, school administrators, principals/HMs, and teachers haven't truly cared for system-level change to ensure all students succeed. If anything it is all a mere slogan.

But as parents, we must also ask ourselves how much we care about the education of our children! It is certain that EVERY SCHOOL would be transformed within two academic years if we, parents, want schools to ensure that our children succeed, come what may!

We would be happy to hear from you all for any support in ensuring that your children's school really cares for your children and will ensure their success in school!

Read this book carefully, read again, go on the Internet to read more, and fight for your children! They have it in them to be the best human and professional imaginable!

A GOOD school

Now that we know the origin and flaws of current schools, what should a school in the 21st century look like?

GOOD is the acronym for 'Guarantee Of Overall Development' (of EVERY student). To us, a good school is a GOOD school, a school that has overcome the 'design flaw' of schools.

Yes, the next-generation schools – knowledge society schools – will not be about expert subject teachers, buildings, computer labs, robotics labs, Olympic-size swimming pools, two soccer fields, huge collection of books, and all such 'input-side' features. Next-generation schools will be wholly outcome-focused and ensure personalisation of all teaching and learning processes and resources to make certain every student succeeds. The input-side resources would not necessarily belong to the school; homes/parents and community will be the extended school.

The entire book is all about guiding and enabling parents to seek GOOD schools. There is nothing to be specifically discussed in this section about GOOD schools. What we will present in this section is a unique listing of '10-commandments' each of which identifies 'a GOOD school', 'a GOOD principal/HM', and 'a GOOD teacher'. Together, the three sets of commandments create a very comprehensive framework of goals that schools must strive to achieve. The commandments are presented in tabular format.

THE TEN COMMANDMENTS FOR A GOOD SCHOOL	
In 1 word	Proud (social institution)
In 2 words	(Quality of) Student-teacher relationships
In 3 words	School = Σ learning spaces
In 4 words	(Students) Learn how to learn
In 5 words	Highest equity in academic achievement
In 6 words	Guarantee Overall Development to all students
In 7 words	Stop marginalisation of talented and gifted students
In 8 words	Curriculum transaction is teacher's responsibility, syllabus the student's!

In 9 words	Teacher as co-learners, academic process assurers, and role-model adults.
In 10 words	Better economic modelling of school – 'Informed/Digital Schools' – Supplement-free, Overall development.

THE TEN COMMANDMENTS FOR A GOOD SCHOOL PRINCIPAL	
In 1 word	Visionary
In 2 words	Instructional Leader
In 3 words	Process builder, nurturer
In 4 words	Truly delegate institutional management
In 5 words	Master institutional economics, handhold management
In 6 words	Empowered children – responsible attitude & academically self-learners
In 7words	Digitalise school for WHOLE-SCHOOL TRANSFORMATION, creative nurturance
In 8 words	No Teacher Left Behind in attitude, skills, knowledge
In 9 words	No Child Left Behind in Compulsory Achievement; no exceptions
In 10 words	Exceptional role-model as a person, parent, teacher, manager, citizen, learner

THE TEN COMMANDMENTS FOR A GOOD SCHOOL TEACHER	
In 1 word	Co-parent
In 2 words	Fluent reader
In 3 words	Effective communication skills
In 4 words	Assuring learning process compliance
In 5 words	Tasks – Academic planning, assessment, tutoring
In 6 words	Ensure students diagnostically self-assess syllabus (book) learning

In 7 words	Academically talented students must achieve curricular objectives
In 8 words	Achieve the highest equity in 'Compulsory Syllabus', reading skills
In 9 words	80:20 discourse principle – 80% lateral, 20% students to teachers
In 10 words	Handhold parents through micro-progress reporting, molecular re-medial actions, Pre-Exam PTMs

We believe these commandments offer a good working framework for change in schools. Use the commandments to discuss the specific changes needed in your children's school to be a GOOD school.

Parents can insulate their children

Since the flawed design is such a widespread and fundamental issue, individual parents, teachers, students, or schools cannot transform this system in the foreseeable future. It requires awareness and conscious effort on behalf of all parties involved, including national and international agencies.

However, the situation is not as gloomy as it may seem to be. In the short run, we, the parents, can ensure that each child thrives in the current environment. This requires a two-pronged approach –

- First, parents need to push schools towards innovatively adopting information technology (ICT), personalizing the educational experience as much as possible, and seeking quality assurance rather than quality control.

  However, parents should keep in mind that ICT adoption needs to be done thoughtfully. Currently, ICTs have been applied in schools without really trying to change anything in the grander scheme of things. For instance, if students' achievements in school are majorly dependent on factors outside of the school – like family, other students, and the community – then, unless ICT is used to formally integrate these entities in the school processes, it would not have the impact it is capable of.

- Second, parents must provide their children with a personalized academic experience at home by dirtying their hands to be their co-learners. We have discussed in earlier sections the need to use a new genre of curricular books written for parents/ families. These books can empower every parent to secure 100% success of their children in school education years.

At the same time, a lot of us feel that the current system is effective enough; we have made peace with the massive doses of supplementary and complementary education we provide at home for our children. While the expense of such support may be a minor consideration, the precious loss of post-school hours in another school-like routine is an unpardonable folly of the parents. To be learners, children need a significant part of the post-school

day, everyday, for self-exploration, play, reading, entertainment, socialisation, etc.

Also, many of us do not feel the need for these transformations because our children seem to be doing well as per school progress reports. But should we trust the gross progress reports schools offer? No! School progress report data is poor-quality data on student performance and is of no use for a committed, hands-on parent.

Schools and student-centric education

For parents to catalyse a fundamental change in school systems, they need to push for a student-centric approach instead of the current teacher-centric approach.

As we have highlighted previously, the developed world's continued marginalisation of students and parents is an educationally unsound model. Innovations in school education continue to ignore independent and self-learning possibilities. Parents are still seen as secondary and supplementary resources rather than the primary resource in their children's education.

Importantly, parents' lack of involvement and empowerment is at the root of the poor track record of schools in making any difference to first-generation learners, linguistic minorities, children from low-income families, socially oppressed communities, and culturally distinct communities. Children cannot grow far beyond their parental context. Educating families is imperative for inclusive education and just societies.

The need to shift towards student-centric education is extremely critical. Almost all regulators, principals, and teachers see no issues with teacher-centric education. Having been subjected to this school system ourselves as children, we do not see any problem with the system either. In fact, many parents are surprised when they see the minuscule fraction amongst us seeking the child-centric education system.

A summary of what characterizes a 'teacher-centric' approach –
1. Teachers are the only 'thinking' participant, and students are simply there to 'follow instructions'.
2. Teachers must read the book and make sense of it for the students, while students may or may not read the entire, or even a significant part of the book. Teachers decide the time to be spent on each chapter, declare when the prescribed syllabus is finished. In all this, the majority of students may still be struggling with half the syllabus.

3. On becoming a teacher, a person is expected to be bestowed with 'magical powers' to handhold, be the 'parent@ school', to tens of students and ensure students do better, grade after grade! Students cannot assist themselves in knowing about things. Yet, they would be expected to get all the homework assignments correct and all the projects nice and tidy.

4. Every teacher is ideal, master of her (grade-level) domain knowledge, professionally well-equipped, and a good caregiver. Students (and their parents) are to be blamed for their weak and average performance. Teachers can never be wrong or less. Teachers would (automatically) grow to be 'model learners' themselves to help students 'learn to learn', while the best educated parents would struggle and fail at becoming model learner.

5. Teachers' design of assessment, evaluation, reporting, and remedial is all educationally best and fair. Students and parents must rely entirely on the teacher's design, and there is no more than that.

None of the above conditions are valid or acceptable in current times. More pertinently, let us look at why the teacher- centric school model cannot bear its own weight –

1. First and foremost, teaching has become one of the most stressful career choices. Nearly 50% teachers report a high daily stress, same as the level recorded among nurses (the most stressful of careers). We are simply expecting too much from every teacher. Teacher-centricity is unsustainable! Obviously, also for the reason that society has no right to demand so much from them. Schools need to transform ASAP.

2. To be real, quality teachers are very hard to find. Subjects like math and science, as well as art, music, and sports have a huge deficit. This is not to say language teachers are easy to find; well-read language teachers are equally rare today.

3. The assumption of teachers as better caregivers than parents must be revisited; teachers are not known to be 'model parents' themselves, they are part of the same social milieu as the parents.

4. What possible value addition can teachers bring to the knowledge transactions in classrooms when the curricular content is ubiquitously available on the Internet and is far more alluring online. Children have to anyway learn to best use all the digital resources, more like life skills.

5. It is unfair for teachers to be assumed to be pansophic in their subject areas as well as child psychology, social processes, cultural context, and more.

6. It is totally untenable that the most educated parents cannot match the domain knowledge of teachers. This is an important issue now because nearly half the world's population is now well-schooled to teach their children.

    In fact, the skewness of educational resources available to teachers and parents is propping up the teacher-centred school system. There is literally no parent support or even exclusively student support resources. New genre parent- centred resources are set to revolutionise the school system towards a student-centred system.

7. A very small middle class with very high aspirations has now been replaced by a much larger middle class with global aspirations. Teacher centric schools as the enablers for masses is out of the question.

8. The lifelong pursuit of knowledge has become indispensable for extended employability, personal development, and social inclusion. As such, learning cannot be confined to teacher-led classrooms.

9. Seeking supplementary tuition and coaching is increasingly becoming the norm. This is highly unprofessional, unethical of schools and teachers, and highly exploitative. Its root cause – the teacher-centric system – must be erased as soon as possible. Traditionally, supplementary education support has been an Asian affliction, but it is increasingly becoming a global threat due to easily accessible online supplements.

    Supplementary education investments – time, effort, attention, and money – not only rob children of a joyful

childhood, it is also very unfair to children from weaker socio-economic backgrounds.

Moreover, supplementary education providers are not as well audited and validated as the formal school system. Challenges of safety, bullying, undesirable company, and even poor quality content are not uncommonly associated with such providers.

10. Success and the entry in chosen professional studies are determined by competitive exams for which the teacher-centric approach wasn't designed.

Clearly, shifting towards a student-centred approach is the most logical solution. High student-centricity is reflected in the following features –

1. The language skills of all students for the language of instruction is impeccable and, at the very least, at the academic level.
2. The reading skills of all students in the language of instruction are at the fluent/expert level by the end of Grade VIII. Around 200 pages of a classic in 5 hours.
3. Students 'complete' the syllabus on their own; they are the lead. Teachers only support and organise collaborative gains.
4. Teachers' primary role is in helping students achieve the curricular goals of every chapter. By curricular goals, we imply the 'raison d'etre' for the inclusion and specific contents of the chapter in a grade. Students and parents can't always go beyond the expressed meaning of texts and activities to appreciate the real purpose for exploring the content.

There is always a larger reason for the way the contents of a syllabus are designed. For example, the purpose of exploring the reflection of light in Grade VI and Grade VIII is not the same. In Grade VI, the main purpose may be to know how we see things (we see things from the reflected light out of them), whereas in Grade VIII, the main purpose may be to observe the 'beauty of reflection' (natural phenomena caused by reflection as well as applications).

It may involve additional conversations on every concept and multi-level assessments and remedial.

5. Homework is not expected to be 'all correct' or 'well presented', but it will always be student's own work in its entirety.
6. Academically gifted and talented students are offered guided access to enriched as well as accelerated teaching-learning resources to set their own benchmarks, never constrained by their actual grade level.
7. Creatively gifted and talented students are offered necessary time (during school hours), resources, regular assessments, remedial suggestions, and appropriate peer groups to help them excel in their field of choice. Such exposure does not come at the cost of academics.
8. Parents ensure a complementing environment at home. In fact, homes become the primary space for academics until Grade VIII.
9. Teachers support as academic planners, mentors, and knowledge aggregators for all the students they teach.
10. Career opportunities are as diverse as possible, and schools offer appropriate assessments for a multitude of careers, starting Grade VI onwards, to match aptitudes with competitive efforts.

A few innovative teaching methodologies have emerged as a result of this realisation. Many schools, driven by strong demand from parents, are starting to adopt these student-centric approaches.

Established student-centric approaches

As we have discussed in detail, although most current school systems still follow age-old principles and are flawed, there are some effective but exclusive education systems that focus on individual students –

Montessori education

The Montessori approach to education takes its name from Dr. Maria Montessori, an Italian physician and educator (1870–1952). Dr. Montessori developed her educational philosophy from her observations of the way children naturally learn.

To her, the ages of three to six is a particularly sensitive period of development. It is sensitive that children cannot learn new things through instructions (being taught) in these years. Everything is new to them. There is no genetic knowledge for human children, unlike other animals. Thus, there is 'so much to learn' for children to start making sense of the world in their ways (the world has to make sense 'at their level'). Children are naturally equipped to acquire all the knowledge from and about their environment.

Naturally, to ensure a reasonably vast and curated (specific to children's social and physical environment) learning, the best thing is to offer a 'prepared environment' beside the curricular resources, child-sized furniture, manipulatives, and other materials that match children's natural size and behaviour. Help them to relax and feel comfortable. This creates a will to learn.

Through such interactions and experiences, children developed an extraordinarily high intellectual and social ability at a young age.

The initial approach underwent many changes over the last hundred years to adapt to the latest research and findings with respect to the learning and teaching curriculum. Interestingly, this approach has been used very successfully across the spectrum, from special needs to gifted children.

Some of the other fundamental features are –

- This method is primarily for young children (2–6 years) but can extend to middle school.
- The method aids the physical, emotional, intellectual, and moral development of the children.
- Multi-age groupings create supportive social environments. Montessori classrooms often have mixed-age children in a class, such as having children between ages three and six. First, this is to factor the reality that children are always at different stages in their development. Second, this is to enable younger children to observe older children play.
- The concept of indirect teaching, a defining contribution of Dr. Montessori's approach, sees the educator focusing on controlling the environment, not the children, unlike what we see across most schools – teachers are controlling the children to 'finish' a pre-determined curriculum. For example, a Montessori teacher will resolve a tussle by refocusing the children on another appropriate activity rather than the usual rewards and punishments.
- The curriculum has key developmental milestones for the ages of three and five. Among the targets are fine motor skills, completing everyday tasks/activities such as art and craft. Children younger than three are expected to hone gross motor skills and language skills (for necessary social interactions). Older pre-schoolers broaden their learning horizon, especially by interacting with their communities through trips and special events.
- It is 'ecological' in the sense that it integrates children's entire knowledge base, as opposed to merely presenting isolated bits of information. None of the subjects are taught separately. Instead, all the subjects are interconnected and taught holistically, reflecting how they occur in life.
- Students learn and work for the sake of understanding and not for grades. This helps develop a lifelong love of learning.

- Children share and work co-operatively to explore the various stations in the Montessori classroom. The very nature of the environment helps them inculcate respect for one another and a sense of community. Some of the standard stations are – Lego blocks, pictures of everyday things like fruits, books, something to create music, and crayons.
- Unsurprisingly, a key driver of the Montessori Method is the teachers' role, or, by that token, the parents' role as well.
- The same teacher remains with the children for the three-year cycle.
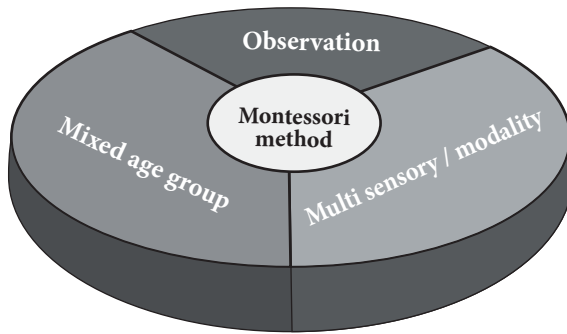
Waldorf education

Developed by Rudolf Steiner in 1919, the Waldorf schooling system aims to develop children's intellectual, artistic, and practical skills in an integrated manner. It takes the science of education, as we know it, to a level of belief and confidence that it creates a very natural environment to educate the child wholly – the heart, the hands, and the head. Cultivation of imagination and creativity is what it is all about.

The teachers in the Waldorf system treat each student as an individual. Their teaching is centred on the following key questions –

- How to we keep the formal learning context as natural as possible? For instance, Waldorf schools don't tend to use commercially available popular physical and learning resources.

- How do we generate and retain enthusiasm for learning?
- How do we ensure academic excellence for each student?
- How do we encourage and handhold each student to be self-aware?
- How do we develop social-emotional skills and life skills in each student to create and sustain a productive social environment all the time?
  Some of the other essential features are –
- The focus is on teaching kids how to think, not what to think, and enabling them to become well-rounded individuals with innate curiosity and a love of learning.
- Students are effectively equipped to think for themselves and navigate their unique journeys.
- The rich curriculum is broad, comprehensive, and structured, corresponding to the three developmental phases of childhood: from birth to approximately 7 years, from 7 to 14 years, and 14 to 18 years. Rudolf Steiner told teachers that the best way to provide meaningful support to the children during phases was to introduce them to the 'age-appropriate' content to promote healthy growth.

This is the system many parents choose if they are especially keen on developing their children's sense of individuality.

Reggio Emilia approach

In 1943, when the end of the fascist rule left behind a devastated Italy in its wake, parents in the small town of Reggio Emilia incited a movement by coming together to start a playschool, using the money raised from the sale of surplus war materials.

They had envisioned a new kind of school where children would be treated with respect, and parents would be active participants in their children's education. This parent initiative, focusing on early childhood education, came to be named 'Reggio Emilia' after the town. In their quest for creating this idealistic playschool, they found Loris Malaguzzi, a teacher who eventually developed the model.

Central to the design was the belief that education must address a community's needs and aspirations as much as the children's curiosity, needs, interests and, ability to do and discover.
In the words of Loris Malaguzzi –

"Each child is unique, and the protagonist of his or her own growth. Children desire to acquire knowledge, have much capacity for curiosity and amazement, and yearn to create relationships with others and communicate."

Every child has a hundred ways of thinking and a hundred ways of discovering learning and communication. There is no fixed frame for a single curriculum as the Reggio Emilia curriculum evolves uniquely with each student. It is firm in the belief that children are driven, and capable individuals and have the ability and desire to construct their knowledge.

The lack of a curriculum's specificity puts a greater onus on teachers. Interestingly, there is no real 'pre-training' for teachers. Teachers are researchers, but their subject is each student. Teachers gather data on each student's developmental footprints and intensively and closely contribute to students' capacity to learn (not knowledge, or skills, directly). The other role of the teachers should be obvious – providing the context for learning.

In turn, children are considered 'researchers' in their own rights; they have their thoughts, emotions, and expressions. They are actively encouraged to communicate with their surroundings. They believe in a 'listening pedagogy'.

They construct their knowledge and create their theories in the context of their relationship with the world. Driven by natural curiosity, they explore through the opportunities that teachers create for them.

Interacting with others is vital for their learning. Notably, teachers continuously observe and record photographic evidence of children's education through their expressions and tangible learning outputs. The pace of learning is as per the children's needs. Children are free to drink water, eat food, and go to the washroom whenever

they need to; it encourages real-life experiences. A field trip provides children with the opportunity to feel and observe first-hand their topic of interest. These experiences help the children and teachers to formulate questions, pose hypotheses, and develop theories.

Some of the other fundamental features are –
- Probably the most distinct aspect of the Reggio Emilia approach is the belief that children use different ways to show their understanding and express their thoughts and creativity. These languages and means of expression are all a part of the child.
- Learning and play are not separated.
- Children can construct their own learning.
- Children are communicators.
- The environment is the third teacher.
- Adults are mentors and guides; they observe children 'at work' to create and ensure appropriate opportunities to let children explore their thoughts, questions, feeling, and interests.

We do not recommend any particular school implementing these approaches. The goal for including these education systems in the book is that there is great educational value in understanding these approaches at work.

Parents need to change the home system as well

We have seen in previous sections how schools are not designed to ensure the success of each student, how parents can push schools towards the desired transformation, and that the most impactful difference parents can make is by changing the environment at home.

By getting involved in their children's education, parents can ensure they succeed, irrespective of the schools' processes and resources.

Here is a list of the ten broad reasons why children end up with poor education at school, which can be easily remedied by parents. Each reason is independently explored later in the book, and it is only briefly discussed here to showcase the 'larger picture'. Consider adopting the remedial suggestions detailed in the pointers that resonate with you:

1. Parents' hectic work schedule
What it is
It is essential that parents assist their children in planning and understanding the school content through the school years, till Grade X, at the very least, but most children in Grade XII also cannot make the best plans for study because schools follow processes and plans that are largely convenient for them. This is to supplement children's academic growth and help parents stay informed and get the best outcome for themselves (such as closer bonding with children) and the children.

However, many parents have demanding professions and find it easier to outsource or take external help in coaching classes or tuitions.

What to do
➢ There are two scenarios when both the parents are professionally busy. First, if the professional outcomes are very financially rewarding, we recommend parents to look for alternate education options, the school will remain far too structured for adequate flexibility, and why should children

not get the best mentoring and resources (schools will always be a compromise, small or huge). There are all kinds of innovative possibilities now.

Second, if the professional outcomes are not very financially rewarding, we recommend parents to make some changes in professional schedules to get one parent available at home between immediately-after-school to 8 pm. Innovative learning resources are now available that enable both the parents to pick the threads from where the other left and keep the continuity with children. The same parent may not have to be available on all days.

It is strongly advised that such parents give due importance to the education of their children, more so because new learning resources are enabling all parents to be as effective a teacher for their children as the 'wisest of the parent' are their own children.

➢ There are two scenarios when one of the parents is a professionally busy parent. First, the professionally busy 'parent' must particularly invest, in various ways, in a loving and emotionally close conjugal relationship. The parents together complement to ensure a loving and caring home for their children.

Second, if the professionally busy parent is a single parent, then there is no easy way as far as parenting role is concerned. However, a more real possibility is closely coordinating children's educational demands with another adult, using innovative learning resources.

For example, once a week, the single parent and the other hired/family person could spend a couple of hours together to be on the same page on all the content/activities planned for transactions at school for the children in the coming week. A new genre of 'Family edition' of curricular textbooks makes such high-quality parental support possible through other significant adults as well.

➢ Each parent must take the time out to call their children for a quick 10-minute chat as soon as they get back from school

and another 10-minute chat when they sit down to do their homework, even during office hours. These 20 minutes can be made to make up for 50% of physical presence. Once again, a quick call between parents pre and post these calls will certainly have 50% work done!

➤ One parent must be on the dining table/place with the children and the other during bedtime. We have realized that pre-bedtime may be the most receptive time for children for all kinds of things – academic, fun, reading, conversations, morals, etc.

➤ Make and achieve a personal fortnightly reading and preparation schedule for children's academic and other educational demands. Make yourself completely conversant with the next fortnight's educational plan of the children (with or without school). Expect nothing less than an amazing outcome for self and children if both the parents read and prepare together. However, ideally don't even touch the school textbooks. We have discussed elsewhere how they aren't made for parents and students. Use new genre 'Family edition' curricular books.

➤ Spend your time ONLY on improving your children's conceptual understanding and connecting their knowledge and skills to everyday living. Focus on significantly sharpening observation, experience, experimentation, reasoning, and logicalisation of experiences. Leave marks and grades to schools and teachers.

➤ Work closely with the school and parent community to improve the quality of academics and the entire pedagogical processes and resources. Use your new knowledge and confidence in the academics of the grade of your children (don't be ahead of your children's 'level'). Demonstrate and impress upon your children's teachers the need for a new narrative in learning every concept in all subjects. Getting schools to deliver more and better is possible. Secure that.

➤ Hire college students or someone else, to be 'reading buddies' for your children for no less than 75 minutes a day on weekdays.

This may be your best investment ever! Follow the same routine on one weekend with you as the buddy.

➤ Use the fortnightly reading and planning to create an environment where children take the initiative to finish their daily homework on their own, but also feel free to ask you for help if required. Use video calls, if necessary.

➤ Try to ensure that your children are ahead of the school's teaching plan by a fortnight to leave space for personal and professional emergencies. While this might not always be possible, trying to achieve this helps children understand the importance of planning and being prepared. This can come especially handy during exam time to ease the workload.

We would strongly advise parents to make time to be involved in their children's academic progress despite all time constraints. It is possible. The best news here is that the new genre of parent-focused curricular books stands to revolutionise academic achievement of children, irrespective of quality of education at school. Only parental commitment to the academic excellence of children would matter!

2. Poor study skills and memory management
What it is
Children often have no idea how to plan their study, strategise for best exam performance or commit important concepts to memory for good. They pay dearly for the lack of training in good study skills and poor memory management routine.

Developing strong memory management skills plays an important role in conceptual understanding. However, there are no specific lessons/practice in schools for memory management and most students struggle with working memory challenges. Also, not all strategies are equally effective, and some work better than others, depending on the child.

Parents are acutely aware of their children's learning style, planning, efficiency, and efficacy. Expectedly, only parents can be the coach in helping children develop the most productive study habits, in general, and as it works specifically for them.

Like all activities, there are good and bad strategies for studying at home for exams and committing to long-term memory for effective recall.

It is also in this context of 'study skills and memory management' that the school years are great preparation for the 'real life', thoughtfully strategized and executed priorities and tasks of the school years are comprehensive enough to give your child a leg up in the later years of life.

What to do

Memory management is almost a science – precise and predictable. There are specific and simple steps to be built into the daily study routine of your children to make the most productive use of memory skills in defining complex problems, as well as computation. This is discussed in great detail in a later section, and we would not extend this discussion any further here.

Be patient and keep working towards it consistently, as it takes a few years of handholding for children to internalise and master these skills.

And yes, these skills are essential professional and life skills.

3. Too much emphasis on 'practising' math
What it is

Math breaks the heart, back, and mind of almost all children and their parents. It has been like this since the inception of schools, and it seems to be getting worse. It is a global challenge in education.

There are only three plausible reasons for this reality – there is something amiss in the human mind, there is something extra peculiar about math as a domain of knowledge, or there is something wrong with math education. There is a fourth; all the three play their part in the mess in math education.

It is safe to focus on the fact that there is something wrong with the education of math. Relevantly, math is abstracted too early, and it is completely cut off from its everyday relevance and application.

For example, too much is made of $\dfrac{\frac{1}{2}}{\frac{1}{4}}$ while it is as simple as 'how many one-fourth of a cake in half a cake'. Who doesn't know that there are 2 one-fourth cakes in half a cake?

Reducing math to the repeated practice of the same kind of questions, for example, dividing all kinds of two numbers to master the division of two numbers, is one big inexplicable, boring, tiring, unintellectual, and senseless aspect of math education.

But it must not be like that! Not at all. For example, the division of two numbers can be learnt out of understanding just one division of two numbers, and thereafter no one can ever go wrong with any kind of division.

If we are explained that the division '$\dfrac{a}{b}$' is to be read as 'how many b in a', then $\dfrac{10}{2}$ is 'how many 2s in 10' (there are five 2s in 10) and $\dfrac{10}{\frac{1}{2}}$ is 'how many $\frac{1}{2}$s in 10' (there are twenty $\frac{1}{2}$s in 10). Unfortunately, this easy, universal definition is not introduced in school math. And school math teaches division by many practise division exercises! Unfortunately, that makes it worse and stressful.

What to do

Math is a subject of a separate section later in the book to present the best strategies for math education to ensure every child falls in love with math and the best academic performance for all children is in math. We leave the further discussion on the actions needed at the parents' end for that section.

'Mathematics as a language' is set to revolutionise the role of math in our lives and in helping us see our children succeed in learning math without any mandatory support from school!

4. Poor comprehension

What is it

Good command over the language of instruction is the first basic skill essential for learning. There is no way for children to learn anything new in classrooms (or through self-learning) without comprehending written or spoken texts. Sadly, language development is highly mechanical in school education as schools do not go beyond the communicative level.

Non-language academic subjects are effectively comprehended only when the competence in the language of learning is at the academic level (kind of 'two levels' beyond the communicative level). For example, in the overwhelming number of 'English medium' schools, English is taught at a communicative level. Expectedly, children face severe comprehension issues in math, science, and social sciences, pushing them to resort to rote learning.

The other reason for poor comprehension is the lack of conceptual clarity in the prior knowledge needed for comprehending something new. But this is also linked to the issue of command over language and how that affects how we learn.

Prof Yash Pal, an eminent Indian educationist, had a novel perspective with regard to the burden on children –

> *"The gravitational load of the school bag has been discussed widely in media, even in Parliament. After this study, I and most of my colleagues on the committee are convinced that the more pernicious burden is that of non-comprehension. In fact the mechanical load on many of our students in Government and Municipal schools may not be too heavy, but the load of non- comprehension is equally cruel."*

He called non-comprehension as the heaviest burden on students, the biggest challenge to address in school education.

We feel the urge to share another startling revelation, but not incomprehensible, attributed to Prof. Yash Pal –

"A significant fraction of children who drop out may be those who refuse to compromise with non-comprehension – they are potentially superior to those who just memorise and do well in examination, without comprehending very much! I personally do believe that 'very little, fully comprehended, is far better than a great deal, poorly comprehended.'"

This is the flip side of non-comprehension – the 'good non-comprehension'.

School education is riddled with gaping holes, for example, the gaps in math education, as illustrated in the previous discussion. Some children refuse to accept the senseless 'rote method' and cut themselves off the mainstream system while continuing in school (but accepting poorer grades rather than let rote teaching interfere with their own reasoning and logic), others leave the system. This may help such children to excel in post-school education or even later in their profession. Also, we all know many such examples of school, college, and university dropouts creating the most inventive organisations and solutions.

What to do
Comprehension is such an integral and fundamental aspect of common and specific conversations and collaborations that it is discussed in detail in a later section. Language and learning are subjects of independent sections in the book, and the two are like the two legs of the organic complex called comprehension.
Discussion on actions are part of those two sections.

5. Stressed childhood
What is it
While stress was associated with old age back in the days, today, even children as young as 4 are troubled by it. At the core of stress is a high level of anxiety about how things might turn out in the immediate or later future. The exact cause of anxiety among young children is unknown. However, the lack of trusted and interested adults, at school and home, who a child can reach out to for

support in studies are certainly key potential drivers. A stressed childhood is not only mentally and physically unhealthy, but it also hinders academic learning. As we can do little about the environment and teachers, creating a stress-free childhood is mostly the parents' responsibility.

What to do
Childhood stress is a generational challenge, a commentary of the state of society and organisations. Let us accept stressed childhood as given, and the information revolution isn't on the solution side.

➢ There is a whole lot to be done to protect children from stress growing up. Stress is also ill-affecting all of us, and we are developing our own strategies to reduce or cope with stress. The reduction and coping strategies for children have to be found in the context of the family, community, and school population.
    There isn't much to be offered as advice across the board on stress management.
➢ Build a social and educational context at home that accepts the likelihood of your children getting caught in this web. This response is unlike the ones for all the other nine reasons. We don't have to wait for signals to act.
➢ Be committed to making your children stress free; stressed children will create an unbearably complex situation to handle.
➢ Of course, do seek inputs from teachers and friends.

6. Low self-esteem
What it is
While children are generally associated with a heightened sense of self-esteem, of late, due to increasing competition, expectations from parents, and constant comparisons, children are more prone than ever before to develop low self-esteem. A severe form of low self-esteem is anxiety, depression, and other such clinically-identified conditions.

What to do
- ➢ Most importantly, acknowledge and appreciate the debilitating impact of low self-esteem and how it may manifest in every thought and action. It is a high-priority task for every parent.
- ➢ Next, it is important to know that self-esteem can be bolstered with every interaction with children; it is all about children getting a sense of better control over the outcomes of their immediate environment (tasks to do, seeking joy, interactions, study, etc.).
- ➢ At the same time, misreading low self-esteem where there is none is worse. Occasional avoidance behaviour is totally normal. Such misreading is easy to avoid because, as parents, we feel any sense of vulnerability, failure, ridicule, (felt) shame, or hostility that children may be facing. Short of such situations, there is nothing to worry.
- ➢ Beware of the signs of low self-esteem. A very wide spectrum of behaviour emanates out of low self-esteem. It takes persistent observation and testing situations to know enough. Signs could vary from suddenly becoming controlling or aggressive to avoidance or quitting; lying over small matters, making excuses for simple things, lack of focus on the task at hand; poor academic grades; and all shades of emotions within a short span of time, such as sadness, or crying, soon after a happy start.
- ➢ The easy-to-read signs of low esteem are avoidance of new situations, people, tasks, things and increased sensitivity to verbal and non-verbal interactions with everyone. Increase your observation to take an informed understanding. Avoidance of a good friend, social gatherings, and nervousness before school tests are readymade indicators of potential issues.
- ➢ Don't sit on any perceived feel of low self-esteem. Talk to teachers and counsellors in school for validation of your feelings. Also, discreetly figure out behavioural disposition with friends and neighbours.
- ➢ The more vulnerable children feel, the greater their desperation

in searching for new coping strategies; unfortunately, these new coping maneuvers may prove even more counterproductive than the original ones, so problems intensify.

➤ On the things-to-do front, dramatically reduce expression of judgement and judgemental stance on children's thoughts and actions. Children are extra sensitive about negative clues when under the spell of low-esteem.

➤ Isolate a trigger and work towards securing a turnaround. For instance, if they're avoiding their friends, discuss the issue with the friends. Talk to your children about the root of the problem, encouraging them to meet their friends without being pushy with your child.

➤ Addressing poor self-esteem can take up to a few years, so you and all the other stakeholders need to be patient. Consistently continue to put in the effort, even when the outcomes are slow to come by.

At the very least, help your children develop high self-esteem in specific avenues like sports, dance, art, academics, etc.

7. Lack of high aspiration
What it is
Lack of high aspiration was earlier associated with children from economically-weak backgrounds, but now it can be observed in children across the socio-economic spectrum. Children are not driven to do better or push themselves, developing a casual and nonchalant attitude towards life and any kind of work. It is often accompanied by a low sense of self-esteem.

What to do
➤ It is here that success in school education counts a lot – it is a big part of growing up. Children must be well supported to succeed in school. It is the simplest aspiration, yet a big one.

➤ Children must also be supported to succeed in 'all subjects' and evaluations in school. After all, most curricula are age appropriate. Struggle and failure shouldn't be associated with any aspect of school education.

➢ If most students in a grade are struggling in any subject/ evaluation, please do take it up with the school (unfortunately, this is mostly the case in schools, in all subjects). Everything about the teaching, learning, planning, evaluation, remedial, etc., must be redesigned to ensure all children have a fair chance to succeed.

➢ Set an example for your child. Set ambitious goals not just with respect to your professional life but also in other aspects which your child can observe. If you are fond of running, for example, aim to run a marathon and involve your children in it as well.

➢ Give healthy encouragement to your children to push themselves. Cheer them to compete with their own performances (and not with others). Avoid punishment and comparison if they are unable to succeed.

➢ Inculcate in them the habit of seeking challenges in everyday routine and then working hard to overcome them, rather than avoiding them or getting intimidated.

➢ Teach them to deal with failure positively and use it as a learning experience rather than getting dejected. Of course, hand-hold children in ensuring employment that is commensurate with the head, heart, and muscle in supporting every aspired goal.

➢ Based on their interests, introduce them to the people in your circle of friends and family who could act as their mentor-figures.

➢ Do evaluate your children's peer group; if need be, mentor them all on setting high aspirational goals.

➢ Importantly, working on cultivating high aspirations is easier than it sounds in the above recommendation. There are no absolute or even comparable definitions/descriptions of any kind of high aspirations. For example, talking about the aspiration to be a 'fighter pilot' is fairly achievable if one realises that all the defence services (including Coast Guards) have pilots, and there are all kinds of flying machines that are used in a fight (helicopter, transporter, reconnaissance, strikers, escorts, bombers, interceptors, etc.). It is not too much to seek

to be a fighter pilot; there are lots of opportunities. And it would not be too bad if one just becomes a (commercial pilot) while aiming to be a fighter pilot.

Thus, children must be encouraged to set high aspirations in a way that is set in its real expansive sense.

8. Peer pressure

What it is

As competition and comparisons become more intertwined with the fabric of our society, children's desire to fit in has only grown exponentially. They fear getting left out or bullied. More often than not, schools end up encouraging children – consciously and subconsciously – to blend in with their classmates. As a result, children are at the constant risk of facing immense peer pressure, especially if they differ from the majority by way of their economic background, social standing, or physical appearance.

What to do

➢ Appreciate that a big part of children getting unduly influenced by peers is the lack of 'peers at home', get the family together for more feel and touch times.

➢ Invest time and effort in building a peer community for your children in your neighbourhood, or in your circle of friends, or extended family.

➢ Work closely, supportively, appreciatively with schools on all manifestations of peer pressure (schools cannot deliver beyond a point).

➢ Handhold your children in building healthy relationships with their peers. Talk to them regularly about their friends and how they are getting along. Identify and keep track of friends who positively impact your children's self-image and friends who do not.

➢ Give your children the opportunity to observe healthy friendships through your own social circle. Lead by example, encourage them to meet your friends who are different from

you, showing them how you both appreciate and respect each other's differences.

➢ Never push your children to blend in, whether it is their sense of dressing, music preferences, taste in literature, etc. Empower them to be honest about their choices.

➢ Encourage your children to share their peer problems with you, rather than forcing them to deal with such issues independently. To set an example, you must share similar problems you might be experiencing or have experienced in the past.

➢ Do not force your child to deal with their problems the same way you dealt with yours. Help them find their own solutions and be supportive and patient through the process. Parental pressure does not help solve peer pressure.

➢ If need arises, do indulge in positive, discreet conversations with other parents in general, or the parents of the children who might be involved in a given worrisome situation; no parent wants children to hurt each other, but they may just be as lonely as you in getting their children to mend ways.

➢ Help everyone in the family gain higher self-esteem, which is substantively supported by positive changes in knowledge, skills, attitudes, relationships, and self-belief. It is to be noted that this cannot be a child-specific change.

9. The herding of career choices

What it is

Children tend to pick popular career choices based on their limited exposure to different careers, unreal assumptions about the quality of life associated with those career choices, and inadequate understanding of personal preferences. Above all, peers are a real force to reckon with in later teens, making them feel obliged to follow the known and unknown.

What to do

➢ Discuss and live a life that demonstrates 'quality of life' as the highest goal to seek; help children develop some preferences about what is 'quality of life' for them

- Don't make the salary and perks of a job/career a big deal in front of children
- Make career choices of children an important educational dimension and a key area of contribution from you. Start the career discovery process from around Grade VI, if you may, else Grade VIII
- Educate and convince yourself of the reality and need to delink undergraduate education and career choices. Undergraduate education must be introduced as more of the kind of the 'general education' in school. Raise the bar for professional competence and give a longer rope to children to make career choices (let the undergraduate years be part of a discovery of self and careers).
- Follow the same career discovery process, experiences, and resources for all your children, do not discriminate to differentiate career choices.
- Ignore children's own perceptions and inclinations so as not to promote narrower choices.
- Promote the widest exploration of careers, almost entirely focusing on the people's quality of life in those careers.
- Do your best to get your children trained in the widest range of academically-focused domains of skills and knowledge, as much as art, music, theatre, dance, and sports. This is to ensure the children really have all the career choices as feasible options post-school.
- Introduce your children to your friends and neighbours from different walks of life. Encourage them to ask questions and understand their profession better.
- Do not establish assumptions around subjects or professions. Avoid making statements like 'Physics is more prestigious than history.'

And one more for the road – try to break the symbiotic link between Grade XII and career choices. Convince your children to take at least a year off after school and discover everything afresh.

10. Confusion between the role of school and home

What it is

Schools remain the dedicated and specialised social institutions for academic education. Overall development may be a shared space between homes and schools, but schools have limited space in the timetable to do more than supplementary inputs.

What to do

➢ Do not start supplementary support in academics at home by hiring tutoring resources. Your child can never be weaned away (there are financial stakes for the tutors, and schools have to factor that support and get easy).

➢ Ensure you make the school and teachers know that you depend on them for academic success, and you will ensure that schools remain accountable for academics.

➢ Seek specific inputs from school on your children and whatever support they need from you on academics. Do not take feedback like, 'work harder', 'she lacks focus', or 'she is weak in algebra' (these are all too broad to be of any value to you).

➢ Find and read new genres of academic content to support your children. School textbooks are not AT ALL meant for parents and for students to help themselves. Don't be horrified to know that school textbooks, with very few exceptions, are so cryptic that a Grade X science teacher will take at least two academic years to get used to the Grade VI science textbooks and teach that grade. And don't expect a Grade X math teacher ever to be ready to use the Grade VI science textbooks to teach science to that grade.

Using school textbooks to support the academics of children is a waste of time, effort, and attention, except, at times, to get better scores in school exams.

Yes, seek and get a new genre of curricular books meant for parents.

➢ Ensure the school religiously considers the connected nature of subjects and works accordingly, invest time and energy to

know the inter-subject foundations, and focus on them. For example, weak language skills will hurt all academics, weak understanding of counting and units will hurt the conversion of units in physics and such others.

➢ Schools cannot ensure growing competence in observation, experiences, experiments, reasoning, logicalisation of experiences, etc. All knowledge domains are deeply rooted in the real world, including ancient history, if I must assert, and only parents can ensure the ever-growing connection of academics and the children's own world.

For example, the reason children must study the 'hunters and gatherers' is that economically they are their 'Great grandparents'. Our children live in a service economy, and the three preceding economic phases are – industrial, agricultural, and 'hunters and gatherers'!

➢ Ensure a reading home that's your most significant contribution to your children's academic success.

➢ The entire gamut of 'overall development; co-scholastics/co-curricular, socio-emotional learning, personality development, life, value education, etc., is too vast to be the school's job in terms of timetable constraints, quality of mentor resources, the given community of students and teachers, etc.

➢ Personal practice is a big part of development, for example, even in a sport like soccer, personal fitness training is critical.

➢ Reaching any level of success in every aspect of overall development requires the commitment of money, a supportive community, and a happy state of mind. Only parents can ensure that.

Once again, schools can never hurt if you are committed to your children. Make the most of the school that your children attend. Talk to school leaders and teachers as equals and as committed co-teachers! Many school leaders will soon be happy to discover the new, more confident you.

Extended circle of influence

We have already discussed the main stakeholders involved in the current education ecosystem. Additional stakeholders, indirectly involved, are the extended family, neighbourhood, and geography. We will examine these stakeholders and their relevance in this section.

Children grow up in complex social environments. The influences on their development are layered. School, family, and neighbourhood are the three most important communities and resources in children's growth. Schools, as we know them, are only the second-best community for your children.

Your neighbourhood

Your neighbourhood might be the best school and your neighbours the best teachers!

As the saying goes – it takes a village to raise a child! Ideally, an entire community of people must interact with children for them to observe, experience, 'experiment', and hypothesise the various educational experiences necessary for growing into a happy and healthy adult. Education in a neighbourhood community is the most holistic preparation for learning and life.

The following educationally significant reasons exemplify why neighbourhoods are parents' best partners in their children's whole-person education –

1. Neighbourhoods can support a family with resources outside the family's reach.
2. Good and loving childcare is a very critical educational experience. Neighbours are the best babysitters and most capable of providing this environment free of cost.
3. A neighbourhood is not as much of a 'black box' as a school. Parents can define and choose a neighbourhood.

Of course, some neighbourhoods may be better than others in helping raise children, but no neighbourhood has a totally undesirable influence.

Two factors limiting the neighbourhoods' role are its effect on the kind of schools around it and the fact that we cannot define an entire neighbourhood. Once we start believing in the neighbourhood's importance in education, we will truly appreciate its positive impact on our children's growth.

Studies on the effects of a neighbourhood on its residents' educational achievements are starting to gain much traction. In research and literature, the role of the neighbourhood in impacting the educational outcomes of its children is found to be minuscule, but we believe that it is primarily because, as mentioned before, it has yet not been defined explicitly. When the role of a family is mostly ignored in school education, we mustn't expect mention of neighbourhood as any important.

Despite the uncertainty and lack of clear correlation, there is some degree of consensus that interactions amongst residents in a neighbourhood reasonably influence individuals over the medium term. Residents are influenced by their neighbours' behaviour and attitudes. The more cohesive the neighbourhood, the more the influence. This makes neighbourhoods really important influencers (and enablers), more so in dense and poorer neighbourhoods.

Neighbourhoods offer better integration of families, essential to ensure that non-family institutions can significantly impact education. There is almost no limit to the resourcefulness of a neighbourhood in developing its children.

Nothing is being done to strengthen neighbourhoods' capacity to be educationally important. To be fair to schools, schools can't find and develop ways and means for integrating neighbourhoods of families into their processes and resources. Neighbourhoods' role cannot be mandated. It is essentially contextual and serves a highly negotiable and dynamic role. Yet, schools have a role to play – for example, schools must promote a new genre of textbooks, real-life laboratories, and real-life resources that place families and communities at their rightful pedestal.

However, it is up to parents to lead the creation of space for neighbourhoods in the educational journey of children.

Cultivating a good neighbourhood is in your interest, and it is the best present you can give your children. The personal returns from good neighbourly relationships are immeasurable, all the more reason to invest in your neighbourhood – emotionally, economically, socially, and culturally. This would ensure the expansion of resources and a better distribution of responsibility among all stakeholders.

Your village/district/town/city

To clarify, we are referring to your entire town here, not just your neighbourhood. The town where you live can also have a significant, long-term impact on your children's education. This is not with reference to the quality of schools in the town, but to the lifestyle and career choices, your children will make in the future. Their town's infrastructure and culture often shape children.

Educating children is among the most important national, as well as humanity-wide, obligations. No family can own all the educational resources and experiences ideally needed for their children. Many of these educational experiences need to be owned by the government, or private companies, so that all the town's children can experience them.

Experiences and infrastructures, such as theatre staging, art exhibitions, music shows, botanical gardens, zoological parks, swimming pools, stadia, museums on various themes, cycle tracks, skating grounds, multi-sports arenas, parks, freedom spaces, etc., can only be created and supported at the level of the city/town – at a zonal level.

Of course, there is often also an element of spatial planning – creating public spaces like big parks, theatres, and museums at one place do not make them easily accessible to all children. Thus, a town needs to create such facilities and effectively enable the widest access to children from all walks of life. It is equally important to innovate such experiences truly. The Bicentennial Children's Park in Santiago, Chile, is far richer in educational experiences compared to other parks. It spans the city and provides a continuous green walkway and play spaces through rich and poor neighbourhoods. It has 'wild spaces', where children can play in nature. Rotterdam in

the Netherlands offers a forested area in one of its city parks where children can make dens, fire and rafts, and even camp overnight.

Unfortunately, we usually feel that as parents we can do little to change our towns, so we do not even try to make such demands on local governments and business houses. By default, we allow our planning systems to be geared around cars, houses, buildings, and the economy – rather than the environment, health, and quality of life.

We do not even push for a systematic look at issues such as crime, social fear, isolation and intolerance, and inadequate and unequal access to the city during the planning and building/rebuilding phases. In the long run, it will hurt our children, too, limiting their choices and affecting their opportunities and quality of life.

As parents, we have a catalytic role – if there is sufficient demand for educationally important facilities, governments and private companies would be forced to create and maintain such facilities.

We must spend time and money regularly visiting and attending shows/performances at as many of these facilities as possible. It is our duty as parents (and as citizens) to make all such facilities economically viable and desirable.

Your extended family

If you have multiple children and wish that the siblings remain close, caring, and form a source of strength for each other even as adults, they must see the same relationship between you and your siblings. Children learn from what they see and experience.

We do not think it necessary to discuss this further – each and every one of us is already well aware of the value of extended family in nurturing children, creating uniquely powerful learning experiences (given the high level of love and affiliation), and helping develop a fair degree of appreciation and tolerance for the family's preferences and idiosyncrasies.

Make sure you keep your children involved with the extended family and the other way round. Invest some monetary resources on this count.

Relevance of post-school academic tuitions

Reliance on post-school tuition and coaching reflects a few distinct structural deficiencies in the education system and its ecosystem. It is mostly not a choice for individual families. There are nations plagued by supplementary education, and there are others where post- school tuition is still an alien idea. The five of the more important deficiencies that result in post-school academic tuitions are –

1. Poor quality school education makes tuition supplement daily school transactions. This is a reality in India, so much so that the clause relating to the ban on tuition by school teachers in the Right of Children to Free and Compulsory Education Act has not been in effect for the past 10 years.
2. Highly competitive higher education, or competitive secondary education, is the reality in Japan, S Korea, China, etc. School education syllabus doesn't prepare students for competitive exams.
3. Society and governance that cares little about equity in education and therefore equal opportunities for children. Quantity and 'quality' of supplementary education become the default/ main education system and a potent means of ensuring the continued advantage for those who have it (blocking social mobility to the masses).
4. Society continues to deny 'full phase childhood', 'right to enjoy childhood' and considers childhood as just a transitory phase in becoming an adult. Post-school formal supplementary education should not find a place in a truly civilised society.
5. A society that is too focused on the economic ends of education, whole-child development isn't on the agenda. Education is highly academics-oriented.

The dominant influence of the national society on the nature of its educational institutions is just the reflection of the symbiotic relationship between the two.

In the context of the above discussion, the following filter out as advice to families on arranging post-school tuition for their children –

1. It grievously hurts natural development during childhood.
2. It kills time, energy, focus, resources, and the value of 'whole-child' development.
3. It greatly interferes with the quality of family life for nearly two decades for every family.
4. It is either poor-quality school education or too competitive higher education. Raise your voice and contribute to school and higher education reform. Supplementary education is not the right response.
5. It is creating an increasingly iniquitous society/nation, unfairly robbing many children of a fair future and entrenching the power of wealth. All this is of no good to any member of the society in the long term.

Yet, if you must use supplementary education for your children, here is some advice – instead of signing up children for group tuition, or regular post-school tutors, consider private, need-based tuitions. Pay higher charges but enlist once-a-week-support at best, let it be for a longer duration, but stick to once a week. If possible, enrol yourself for supplementary support and then support your children.

Managing and leveraging homework

Homework, one of the most impactful interfaces between parents and schools, is important for children for various reasons. Firstly, it allows them to experience in real life the theory they learn in classrooms. Secondly, it reaffirms concepts, which helps them improve their recollection and understand abilities. Thirdly, it keeps children productively engaged. Lastly, it allows parents to be more involved in their children's academic progress.

Unfortunately, the homework our children are expected to do does not always help achieve these objectives. To ensure that this is rectified, the assumptions around the nature of homework need to be addressed. In many cases, parents (or tutors) take the lead in finishing the homework when children start struggling. Not only does this prevent them from learning new concepts, but it also hinders the growth of their problem-solving skills.

Detailed instructions with stringent timelines around homework force children to develop a herd mentality rather than be creative and innovative. They end up focusing more on the grades their homework will receive instead of enjoying the experience of learning from it.

Unfortunately, parents have no direct control over the quality and nature of the homework received from the school. But they can keep track of their children's schoolwork and nudge teachers in the right direction.

The ideal conception of homework has three components –
1.   School-led work at home
2.   Parent-led work at home
3.   Child-led work at home

This conception is based on the necessary distinction between work at home and school, and the importance of both in the educational journey, as well as preparation for life. Work at home is more important of the two. Never forget, schooling is just one space for education of children. Indeed, the ideal role of a school is to train and support parents and the community in the highest quality

education at home and the education at home to complement and supplement in very specific ways.

On the contrary, we can see that an overwhelming majority of schools and parents are just working with the school-led work for home, a sign of poor quality education of children.

School-intensive homework create several distortions in the school education system, for instance –

1. Parents can't take any initiative in the nature of educational tasks and routines at home, which isn't good.
2. Children never get the mind space to think anew, to think out of their logic, reasons, observations, and experiences.
3. It easily corrupts the discipline of the teachers in terms of balancing classwork and homework and breeds a sinking spiral of accountability.
4. School-induced stress is mostly linked to the volume, daily pattern, nature of homework and grading of homework (a school-led homework has to be 'checked' if not graded).
5. It interferes with the family routine, relationships, social commitments, etc. – this is against the very grain of education.
6. It highjacks educational opportunities at home. For example, there is little time for pursuing interests, it distorts plans of tasks at home and narrows the topic of discussions on the dinner table.

The following are some suggestions on what teachers and parents can do to improve the learning experience through homework –

1. There should be explicit acknowledgment and appreciation by the school of the critical role of parent-led and child-led homework. School-led homework must be moderated accordingly.
2. The order of impact and priority of homework must be – child-led homework, parent-led homework, and then school-led homework.
3. Schools need to play an important role of closely coordinating with parents and continuously motivating students to ensure rich and varied routine of child-led and parent-led homework – it should be the top agenda at every parent-teacher meeting.

4. School-led homework must always demand the shortest time and content. Parent-led homework must be the bigger proportion of the three till primary years, and then child-led homework must take over and steadily reach close to two-thirds of the homework in the secondary school.

5. A hallmark of a good school is the high-intent focus on developing a homework culture and system which increasingly overlaps between the three kinds – the more overlap, the better.

6. Designing the school education system around the quality of work (education) at home, it is imperative that the homework should be the beginning for all new learning. Students should be required to pre-read the content ahead of the planned sessions in class and extensively discuss and debate the contents in the classwork. This is also to ensure that all that students have a fairer chance of understanding all the concepts/skills, and teachers get to manage classrooms more efficiently and allow time for experiments and activities during the class.

7. Make reading of textbooks and literature a good part of the homework. This can be supervised in the form of regular dairy entries or book reviews. We have an entire section of a discussion on reading and how the most efficient and effective way to learn something new is to read about it first and then do/see/converse about the same.

8. Good quality school-led homework examples are pre-reading classwork content, pre- and post-teaching (online) assessment, school assessment prep, projects/craft activities, any discussion on content for classwork with parents, siblings, friends, neighbours, and the likes.

9. Good quality parent-led homework can be anything we do or imagine – it is the education for life with many hats and many habits of the mind and body. Cooking, gardening, doing up the house, storytelling, community work, social and cultural events, etc.

10. Good quality child-led homework examples are reading, free play, good rest, sports, art, music, dance, craft work, relaxation

activities, entertainment activities, hobbies, interests, self-preparation for the teaching ahead, designated/self-directed household chores/tasks, additional academic reading/experiments, and many more.

Help the school rewrite homework policies and practices, as you learn to take homework to be the real education of children. Homework is the real nursery for a better society.

Parents with children in boarding schools

Many parents opt to send their children to boarding schools. Boarding schools were traditionally associated with royalty and the rich and were said to offer high-quality education. These schools typically focus on the overall development of students. The families choosing boarding schools were rich enough to hire quality private tutors for home education, but they couldn't secure local access to all the resources for whole-child development, including a community of children from similar backgrounds.

In the past couple of decades, the nature of families and focus on boarding schools have visibly changed. The change in the nature of families seeking boarding schools for their children is more of the following kinds –
1. Both parents committed to demanding professions.
2. Parents seeking international school education for children.
3. Neo-rich families seeking a different educational context for children.
4. Parents seeking to get better preparation for competitive exams.
5. The 'traditional boarders' – elite families in remote areas without good schools (but this is not as common a kind as it used to be).

In response, many new boarding schools are more focused on academic success and competitive exams, and old and some new boarding schools continue to focus on overall development.
Is that the story of boarding schools?
Boarding schools have significantly changed in a much quieter way; the student population is just not the same children. And how does it show? In the new dos and don'ts for parents.

The new dos
1. The need for daily connection with the school.
2. The need for long-distance parenting.
3. The need for new antennas for socio-emotional health, mental health, virtual peer pressure, and bullying.

4. The need to blend in with the children when they return home, not the other way around.
5. Ensuring love for reading during the holidays (boarding school regimen leaves little space and attention for a lot of reading, and now only parents can inculcate that habit).

Financing education

Education has become expensive in absolute terms and calls for better planning of finances. On the whole, the cost of private education has been increasing at a rate higher than inflation. There are no indications that it is going to stop its northward movement soon. 'Quality' school and formal higher education are getting to be taxing for the upper-middle class as well.

However, there is an interesting twist to the context, goals, and process of higher education – the best quality higher education could increasingly be organized outside formal classrooms. Free and low-cost, yet world-class, online courses are among the fastest-growing 'products' on the web! However, such courses are only real for adept self-learners.

Not surprisingly, the more important aspect of the ideal financial planning for higher education is ensuring that your children become self-learners while in school, avoiding the trap of the 'rote school education'. In numerous schools across the world, the majority of children effectively regress academically with each passing year and, as a result, develop an unfavourable attitude towards learning new things or learning on their own. But we have already discovered that we, the parents, can ensure that our children become learners, with or without school support.

Clearly, there are opportunities for innovation at both ends of education – school education and higher education. The traditional idea of financial planning for education must be rehauled. Invest in a 'solid foundation' for your children – invest heavily and focus on your children's education in the early years. Save for higher education only if you have funds to spare after spending all that you can on your children's multiple intelligences up to the age of 18.

Don't worry about the nature and cost of higher education a decade down the line – in all likelihood, it will fit into your 'leftover educational budget'. The nature of businesses is transforming in a way that it is seeking more human, social, and free-thinking skills – too late to be taught in higher education.

However, avoid the mistake of thinking that you can fund your children's school (hopefully you won't expect schools to fund) and delegate the task of organising and monitoring the nurturance of multiple intelligences of your children. Schools' abilities have already been pushed to the limit, and schools are not invested with people and resources to manage the whole-person development of children. It is like asking hospitals and doctors to take care of your health and prevent you from falling sick. Doctors are trained to cure a disease that has manifested. They are not formally trained to 'keep you healthy' and keep you away from 'need to be cured' for something.

School-year education is now the new investment-heavy part of children's education. And these are mostly direct investments in your children. Any cost saving is limited to sharing a coach, place, travelling cost, etc., with a small group of children with similar developmental choices.

American business consultant and academic, Clayton M. Christensen (1952–2020), father of the 'disruptive innovation' theory, had this to say on higher education –

> *"The economic urgency around higher education is undeniable – the price of tuition has soared. Student loan debt now exceeds $1 trillion and is greater than credit card debt. At the same time, more education does not necessarily lead to better outcomes. Employers are demanding more academic credentials for every kind of job, yet are, at the same time, increasingly vocal about their dissatisfaction with the variance in quality of degree holders."*

As of now, college degrees only symbolise an imprecise encapsulation of one's skills for the knowledge economy of today. For instance, an estimate places the number of skillsets needed in the total workforce has increased rapidly from nearly 200 in the 2010s to well over 1000 in the 2020s. How can formal education ever enrich and expand itself to support such shifts and so quickly?

"Learning and work are becoming inseparable,' argued the authors of a report from the Institute for Public Policy Research (a London-based think tank), *'Indeed, one could argue that this is precisely what it means to have a knowledge economy or a learning society. It follows that if work is becoming learning, then learning needs to become work – and universities need to become alive to the possibilities."*

By breaking down learning into competencies – not by courses or even subject matter – new knowledge providers can cost-effectively combine learning modules into pathways that are agile and adaptable to the changing labour market. Over time, the industry- validated experiences that emerge from the strong partnerships between online competency-based providers and employers will ultimately have the power to override the importance of college rankings and accreditation for higher education.

School years never counted more, be happy! The conditioning for the best lifelong career for your children is now.

What to appreciate children for?

Meaningful appreciation, an art unto itself, is among the most important parenting influences. There are all kinds of 'truisms' abound on 'how to (or not to) appreciate' your children. Shying away from such views and suggestions, we want to focus on 'what to appreciate', that is, the 'content of appreciation'. The fact of the matter is that the content of an appreciation is its most impactful element. The other important elements of good appreciation are time, place, genuineness, attendant token, and the surprise element.

Let us recall some of the more common appreciative statements we use (or see being used) for children –
  ➢ "You are bright."
  ➢ "You are intelligent."
  ➢ "You are hard-working."
  ➢ "You are gifted."
  ➢ "You are the ideal child."

All of these are music to children's ears, but these may also seed an element of confusion in them. Are you wondering what the confusing aspect might be? For the sake of a sharper discussion, let us examine a fairly typical situation to understand how and why confusion starts to blossom – A child is appreciated for securing high marks in an algebra test. But the child is already staring at another test and wants to be appreciated again for high scores in the upcoming geometry test.

In this scenario, the child would be left bemused with the following questions after receiving much appreciation for the marks in the algebra test –
1. "What exactly was I appreciated for – marks, hard work, or getting algebra right? In any case, it could also very well have been just a sheer stroke of luck."
2. "What do I do next? How do I start preparing for the next test feeling more self-assured about performing even better this time around? What do I know better about algebra or myself

through the appreciation I received for my algebra test score?"

3. "How did getting high marks really help me? Does it mean that I will always secure great marks in algebra?"

4. "Do people really understand me? How am I really different from others? Am I better or worse in algebra compared to others who got similar marks?"

5. "What is in it for me? Does getting the appreciation really mean more liberties and fun in the future?"

6. "What if the appreciation is misplaced? What if the appreciation is just to pep me up to score more marks the next time around?"

And there are infinitely more questions/thoughts in the amazingly fertile mind of children.

The clear imperative – your knowledge needs to make itself evident in your appreciation. For this, you need to know better your children as well as the subject of appreciation. It might seem like a tall order, but it is the need of the hour. If getting to know the domains of study/endeavours of your children is not easy, work hard on knowing your children better.

But no domain of knowledge is hard. Just ask your children about their thoughts, observations, and experiences and intently listen to them; you would know enough about the domains too. Interestingly, such discussions also provide a treasure trove of knowledge about your children. And listen to all other significant people in their lives to know more. There is not much to be researched to discuss your children with others; just open dialogue and listen.

Be apparent and upfront in your (genuine) efforts to know the domains of your children's endeavours and care enough to know more about your children's strengths and weaknesses, and then see how your children react to your appreciation.

Here are some examples of 'better-framed' appreciations that are the result of having better domain knowledge –

➢ "You played ball-by-ball today."

➢ "Your concept of division of fractions seems to be good for use in single-digit fractions."

- ➤ "Your answer to that question on heat was excellent; you seem to have got the difference between heat and temperature."
- ➤ "Your essay on friendship was very evocative, especially the metaphors you used to express the depth of your friendship with Ritika."
- ➤ "Your rendition of 'Raag Durga (a melodic framework in Indian classical music)' was precise, and over the 5-minute performance, you went off-key only once – the 'komal re (flat note)' instead of 'shudha re (natural note)' towards the end of the 'aalap (the opening section)'."

Here are a few examples of 'better-framed' appreciations that are the result of knowing your children better –

- ➤ "You are getting more meticulous by the day. I observed the way you went about working out a plan B in case …"
- ➤ "I see that you have picked up a few things from our last conversation on …"
- ➤ "Your reading speed has really improved; I noticed that you finished this book …"
- ➤ "You really like to play with …, I am told by her mother that …, I am happy for you."
- ➤ "Now I know why Thursday mornings are your happiest mornings, it is …"

Make a promise to yourself – next time, be better and smarter at appreciating your children!

LEARNING JOURNEY

"You can teach a student a lesson for a day; but if you can teach him to learn by creating curiosity, he will continue the learning process as long as he lives."

Clay P. Bedford

Learning is a very complex and multifaceted process, about which scientists still have to discover most things. What we do know is, for a child, learning is reflexive; it takes nothing to learn. A child of three is the most powerful 'learning machine' on earth!

In fact, all are innate learners, and an understanding of who the children are, their stages of growth, and the growth milestones, are a great guide for their learning journey.

Stages of growth for humans

The pre-adult stages of growth for humans are categorised as infancy, childhood, juvenile, and adolescence. Each of these stages impacts our growth and learning journey, so it is vital to understand their relevance in that context. Let us register the key features of each stage –

Infancy – Complete dependence on caregivers

It is the period of growth when babies are entirely dependent on their caregivers (parents, elder siblings, grandparents, etc.) They cannot directly communicate their needs and the caregivers have the responsibility of proactively taking care of the infant. Interestingly, the duration of infancy is determined differently by different cultures and varies between 1 to 2 years of age.

Childhood – Foundation for personal and emotional development

This is the post-infancy phase of growth, where babies start becoming emotionally and physically independent. By the end of childhood, babies start eating, bathing, and dressing independently. They start forming opinions on their likes and dislikes and try to express them through actions. Typically, childhood continues till the age of 7. During childhood, brain development takes priority over physical development. By the end of this stage, the brain has grown to its full size.

Juvenile – Social development

This stage typically represents increasing freedom of thought and action. It begins around the age of 7, when the first permanent molars start developing until puberty hits – a phase of nearly 4-5 years. The juvenile phase must not be confused with the legal definition of the juvenile age of 'up to 18 years'. The legal definition is not biologically and developmentally accurate.

Adolescence – Physical development and transition to adulthood

At this stage of development, children attain maturity in all aspects necessary for physical survival. The adolescent stage includes the development of secondary sexual characteristics and the onset of 'adult' interests and activities – far more complex cognitive behaviours compared to juveniles. These physical and behavioural changes of puberty occur in many species of mammals. However, what makes human adolescence different is that both boys and girls experience a growth spurt during this stage – a phase of rapid acceleration in the growth of virtually all skeletal tissues.

Besides the biology lesson, the two key takeaways for parents from these insights are –

1. Childhood years lay the critical 'personal and emotional foundation' for life.
2. Juvenile years sow the seeds of 'social development' that continue to evolve/mature in the years following adolescence.

The importance of 'childhood' – The stage unique to humans

It is pertinent here to digress and understand the importance of the childhood stage, which is unique to humans.

The size of the head at the time of birth is limited by the bipedal (walking on two legs) nature of humans. The brain is so complex that its growth cannot occur in the womb and must occur outside. Every child experiences this phase of brain growth for somewhat different periods of time, so parents should ensure their children enjoy some degree of flexibility and freedom in this phase to develop at their own pace.

Parents can leverage this phase to –

1. *Help children form bonds outside the immediate family* – This stage is the perfect time for parents to introduce their children to their extended family – friends, neighbours, distant relatives, and grandparents. This allows children to create bonds with people other than their immediate caregivers and parents. In the long run, this helps in their social development and growth.

2. *Lower risk of diseases* – As children grow beyond the stage of infancy, they are less likely to fall ill due to the strengthening of their immune system. Additionally, since their brain is reconfiguring at this stage, it is possible to reverse any deficiencies – very broadly, the ill-effects of malnutrition have a higher chance of a reversal in children compared to adults.

3. *Enjoy a better quality of social, personal, and professional life* – Extended childhood gives parents more freedom and time to develop and grow as parents. This phase also allows biological parents to reduce the inter-birth interval. After weaning the infant, the mother is freed from the demands of nursing and starts ovulating again. In comparison, the infancy period for the ape species is longer than that for humans, so mother apes remain reproductively constrained for an extended period.

4. *Help children adapt to their unique environment* – Unlike other animals, children are born without any instincts and so they can easily adapt to their surroundings. We were not aware of

the special learning powers of human newborns until the 1930s, when Austrian zoologist and ethologist Konrad Lorenz (1903–1989) demonstrated that newly-hatched geese have an innate instinct to follow any moving creature ahead of them (called 'imprinting'). This preprograming helps vulnerable goslings accept their mother as their natural guide and protector soon after hatching. Interestingly, imprinting can be manipulated. When Lorenz took the place of the goslings' mother, the newly hatched gosling automatically followed him. This behaviour could not have been learned because it was the newborn birds' first experience. These extensive preprogramed instincts in all animals limit their opportunities to learn from life. Since the extent of preprogramed behaviour in a human child is non-existent, their possibilities of growth and development are almost limitless.

Children respond to the environment they grow up in as they have negligible intuitive abilities for life. For instance, a girl in Ukraine was left to live in a kennel by her abusive and neglectful parents between the ages of 3 to 8. For five years, Oxana Malaya had no one for company other than the dogs with whom she shared the kennel, but she managed to survive by imitating the dogs' behaviour.

Childhood, therefore, allows parents to make their children adapt to their unique environment. As their brain grows and develops, they can start fitting socially, culturally, and physically with their surroundings. Not only does this long period of initiation smoothen adaptation, but it has also allowed humans to raise a greater percentage of offspring till adulthood compared to any other species, even in harsh conditions.

5. *Lay a strong foundation for learning* – Unsurprisingly, 0–5 are crucial years for establishing the foundation for all future education. *The potential learning impairment could be severe if these years are not richly stimulated and attended to.* If a child is blindfolded between the ages of 3 and 5, then he will never be able to 'see' for the rest of his life, despite having perfectly

functional eyes. The impact of two years at any other age is much milder.

Hence, parents can use these years to prepare children to internalize lingual, cultural, religious, and social practices. The exploratory behaviour of children at this stage lays the base for future growth. *It is an extremely powerful and complex learning phase that can be exploited through simple, informal play at home.*

Emotional and social development in the early years

We cannot emphasize the importance of emotional and social development in the early years to ensure overall growth. Unfortunately, many parents may focus more on motor abilities and physical growth during the early years while not giving adequate attention to emotional and social development. They tend to believe that emotional and social development occurs at a much later stage and happens involuntarily. We would like to reiterate that the early years are integral for development, so parents must consciously focus on it.

A growing body of scientific evidence tells us that *emotional development begins early on in life* and is a critical aspect of the development of the overall brain architecture. This discussion will highlight what makes childhood the most important phase of emotional and social development in humans. *All future emotional and social experiences are based on the foundation set during these years.* Parents play the most crucial role in this development, not only because children spend a large part of their childhood at home, but also because schools cannot manage children's emotions on an individual level.

The development of our ability to experience and express different emotions starts soon after birth. Infants experience and display very basic emotions. They cry when they experience distress (hunger, cold, etc.), they experience positive emotions when fed, soothed, and held. As they grow, their emotional repertoire expands to include feelings of pride, shame, guilt, embarrassment, etc.

It may be news to many parents that their *toddlers and pre-schoolers' emotional states are, in reality, very complex.* Young children can feel surprisingly deep and intense bouts of sadness, grief, anxiety, and anger, in addition to experiencing the height of joy and happiness. They become more capable of managing their feelings, depending on their emerging emotional capacities to interpret their own experiences and understand others' actions and responses towards them.

As time progresses, all incremental emotional and social development takes place on this very foundation.

The emotional health of young children – or the absence of it – is closely tied to the social and emotional characteristics of the environment, which includes their parents and the broader context of their families and communities in which they spend their early years. Most importantly, as young children develop, their *early emotional experiences literally become embedded in their brains' architecture.*

Thus, young children's emotions must get the same attention as their thinking, but this is not feasible at school as teachers do not have the time or emotional bandwidth for this level of individual attention and response.

Children can perform optimally in school only when their emotions and feelings are well-understood and managed. The circuits involved in regulating emotions are highly interactive with executive functions like planning, judging, and decision-making. Executive functions are intimately involved in the development of problem-solving skills during the preschool years.

Thus, **parenting in the early years should heavily revolve around children's emotional and social well-being** as these years have a long-lasting impact on the outcome of their life, not only with respect to their social skills and emotional health but also their problem-solving and analytical skills.

Implications of the stages of growth for parents

Children grow in their own way during the different stages of development. Parents need to give them that freedom and flexibility. However, it is also equally important for parents to keep track of their children's progress to address lapses and gaps promptly.

Here are some of the educational milestones to look out for during the pre-adolescence stages –
1.   Key milestones for the childhood stage:
   ➢ Socio-emotional integration with the immediate community
   ➢ Good independent reading
   ➢ Some definite habits of mind and body
2.   Key milestones for the juvenile stage:
   ➢ High freedom in everyday routine of all kinds
   ➢ Physical development goals
   ➢ Independent learning ability in all 'subjects'

Ideally, children should have attained all these milestones by the time they become adolescents. If you feel your children are lagging in some areas, do not lose hope. Although it gets more difficult to undo these gaps with each passing year, it is never too late to address the deficiencies of the previous stages of growth. It is essential to identify and address them as soon as possible.

Many successful people are, in fact, 'late bloomers' who simply worked hard on their developmental gaps with great determination and conviction later in life. The human brain power peaks in the 30s, therefore, one can cover up for all lost opportunities till the 30s.

Parents often want their children to be the first among their peers to reach developmental milestones, but earlier is not always better and, sometimes, may prove to be detrimental. In a 1977 study by Czech developmental psychologist Hanus Papousek (1922–2000), it was observed that human infants who started learning to turn their heads to specific sounds at the age of 31 days mastered the task by the time they were 71 days old. In contrast, infants who started learning to do so at birth did not master the task until they were 128 days.

The bottom line is to remember to be patient and develop sensitivity towards your children while you navigate these key developmental years together.

Know the children

Sit down and write a note on what you know about children – not just about your children or your children's personal information, but children as they usually tend to be. Ask your children's school or teachers to do the same.

Compare the two notes on children with our notes, which are based on our work as educators and hands-on parents.

Get a deeper insight into who your children are based on these three notes. These perceptions should be the 'ground zero' for your interactions and work with children. Keep refining your understanding as you go along but stick to a set of 'assumptions' on who (and what) your children are.

The school's/teacher's note could also be used as the starting point of a discussion for arriving at a common understanding of children for school education. This engagement with the school is very critical but not demanding.

The surprise of 'home-schooling' – Our notes on children

The following is a list of the happy discoveries we have made about children over the years. The crux is that children are born with all the knowledge and skills they need in life, but we often make them 'grow out of it' and then try to plant them back in our own ways and time.

For instance –

- At 2, children have the 'right' sense of fairness! Amazingly, such young children can tell if anyone is being treated unfairly. We may not remember the first time we heard 'this is unfair' coming out of our mouth, but our daughter was under 2 when she uttered the three heavy words!

    Just to illustrate how we ignore and push away what children are, here is the journey of the sense of fairness in children. By the age of 10, children know that the world is not fair (because no one is, including parents and teachers), and by the age of 15, they themselves start playing unfairly. What else can they do? When they are young adults, we start to lecture them to be fair, but it isn't fair to them!

- At 3, children have an instinctive ability to peg identities and expectations. They have a rather 'deep understanding' of relationships and know the 'difference', whatever there might be, between their relatives, for example, categorically separating the 'Mamas' (maternal uncles) from the 'Chachas' (paternal uncles). They live in the present, rarely mixing expectations from different relationships.

- 3-year-olds know exactly when both their stomach and appetite are satiated and don't eat more to avoid upsetting their digestive system.

- At 4, children are uncannily adept at 'measuring up' people and responding accordingly – rarely are they wrong! They are astonishingly precise at both 'summatively' and specifically assessing people. Can you remember how many times you have impressed your children with fake friendliness? Not even once.

Worse, somewhere down the line, we actively condition them to start ignoring or suppressing their assessments.

Not much later, we expect them to act on their assessment of people, take their own calls.

- At 4, children are copy-book negotiators! How readily and amiably they discuss and settle their turns on the slides, merry-go-rounds, or rides! They are highly sociable and good team players – growing up becomes a toughening process that wrings such qualities out from them.

- Many 4-year-olds command a fairly pictorial frame of cleanliness and orderliness and can expressly comment on the mess around them. Our office is in a village enclave in Delhi, and we vividly remember that our daughter never liked visiting our office because of the 'clumsy' atmosphere outside.

- By the time they are 5, children become perhaps the best-of-class politicians. They are born 'political' (not in the corrupt sense of the word). They are always on the right side and get away with it.

- At 6, children think logically and rationally. For example, when our daughter was around that age, she believed that there was no point in sharing the bullying that happens in school with parents because they might overreact!

- At 12, children can decide to forgo 'junk food', buttery parathas, sugared glasses of milk, and the like – and remain steadfast in their commitment. They just need an 'inner call' to spark the flame (and then keep the fire going), not our sermons.

- By the time they turn 18, some children are already great leaders. You can see their leadership in action in the games they play in groups. One or two children will rise (or will be 'risen') to the occasion and resolve any disputes or issues that might be hindering the game.

The following section is actually snippets of conversations between Sandeep, Saloni, and their daughter, Shreya. The context of these conversations was the need to understand how much of the current

state of entropy in school education (or education across the board for that matter) is attributable to the current 'genre' of children!

We suspected the children to be the most significant source of dissonance within the school education – our children are different from children 30–40 years ago, but we continue to school them in the same way as it was being done 30–40 years back little has changed in schools between the 1970s and 2020s.

Few months into her education at home, 13-year-old Shreya's one-liners in response to the question 'how do teens see themselves?' are as under –

- "Paper, pencil, eraser, bags and all are not our media! Digital devices are our forte."
- "Some of my friends joined Facebook at 7."
- "It is ok to ask questions."
- "You (parents) cannot describe it... it's more than being 'cool'."
- "We are somebody by 12! We know something by 12!"
- "Our entertainment has evolved."
- "I don't know how you studied these things; they don't make sense."

Of course, this is how a fourth-generation learner (Shreya, for instance) associates with 'studying at school'. Clearly, we can see that schools do not relate to the world in which today's children live.

Shreya's one-liners in response to the question 'what do you think about your teachers and school?' are as under –

- "I don't think they really know what they say or really care about what we think about their teaching."
- "How do you say that schools are meant for children? It is meant for teachers to work there, and parents to keep their children while they work."
- "The principal dictates the teachers; while teachers dictate the students and parents, and students one another; it's different levels of bullying, all the time!"

Other gems from Shreya –

- "Friends are very important; they are always there when you need them."
- "What I want to be as an adult is not something I think about. What is the hurry? You've got money for us all."

What is the implication of the aforementioned description of our children for schools and homes?

Treat (teach) them like adults – andragogy – involve peer learning, lateral exchanges, with limited top down, and significant bottom-up teaching-learning. The classroom transaction needs to be turned on its head. Pedagogy, the way we educate children, has no future beyond primary years! Here is a comparison for the sake of discussion –

A comparison of pedagogy and andragogy

Dimension	Assumption(s) in pedagogy	Assumption(s) in andragogy
Learner	Dependent	(Largely) Self-directed
Prime behavioural drive	External rewards, inducements, threats, punishments	Internal motivation/reason, growth
Classroom transactions	Formal, not very trusting, rather tense, authority - oriented	Relaxed, trusting, mutually respectful, informal, warm, collaborative, supportive
Planning	Primarily by the teacher	Mutually – by learners and facilitators
Diagnosis of needs	Primarily by the teacher	By mutual assessment
Setting of objectives	Primarily by the teacher	By mutual negotiation
Design of learning plans	Teacher's content plans, course syllabus, logical sequence	Learning contracts, learning projects, sequenced by readiness

Evaluation	By teacher	By teacher
	- Highly structured	- Guidelines
	- Highly quantitative	- Fairly qualitative
	- A summary (pass or fail)	- Fairly formative
	- Largely summative	- Fairly diagnostic
	- Not diagnostic	- Peer-reviewed
		- Often expert-reviewed

- Accept the changed significance, content, processes, and dynamics of socialisation for our children.
- Curricular academics, at least in their current form, makes no sense to them. Get a new curriculum – goals (outcomes of academic education), content, syllabus, lesson plans, and assessments.
- Support the widest exploration of interests for your children to help them figure out something unique from these explorations.
- They are already smart; teachers could very well learn from them and sometimes take their assistance in class.
- Homes and business organizations have become a lot more democratic in their manner of conducting their affairs, but schools are far away from it; they must change to become more democratic.
- The Internet needs to be integrated into their curricular routine very quickly and significantly as they already spend many hours online everyday.
- Significantly increase the proportion of 'co-curricular' aspects into the routine of the school and offer it at expert levels!

Overall, we believe that raising children in these times could turn out to be our biggest vertex of success! For, it's no less education for us as well: it helps contemporize us.

What changes did Sandeep and Saloni observe in their daughter during the initial years of home-schooling?

"Within the first few months of leaving school, there were behavioural changes in her. For instance –

Her 'tantrums' and 'unreasonableness' were fast diminishing. She was quicker to 'see our point' and would express her real issue/wish.

She was 'pretty cool' about her newly-acquired status as a teenager, a total contrast to the year she had spent 'preparing for the new teen phase'; she felt far more comfortable in new environments, and we observed her happily playing with younger kids, a completely new aptitude.

She was visibly happier and seemed to enjoy spending her evenings playing with children far more than she did during her school days.

She was far more expressive about her affection towards her father.

There was a stark increase in the creativity of her violin, vocal, and painting outputs. We now think that the hostile peer environment in school had discouraged nurturing these interests because they were completely 'uncool' according to her peers. Once she was out of that context, she was free to be herself (and let go of the impression that the guitar was the only 'cool' instrument worth learning).

She had lesser needs – she had been after us for a year to give her an Internet data card, but when she actually got it, she returned it within a couple of hours, saying, *"I know I'll just end up abusing it, so guys, keep it. I can keep borrowing it from you, anyway. It's not like I need to use the net for too many things now."* Her craze for watching movies also got toned down.

We really met our daughter after we started to educate her liberally. The school did interfere in our relationship with our daughter.

And we cannot help sharing what the famous US librarian John Cotton Dana had said (for teachers) well over 100 years ago, *"Who dares to teach must never cease to learn."* You'll discover a new you as it happened to us while educating Shreya – being a lifelong learner! The only reason strong enough to drive us to be contemporary in the knowledge society is getting a hands-on experience in educating our children."

Pillars of individual learning

Now that we have sensitised ourselves to who our children are, it is only fitting that the next step should be to understand how they learn and develop into strong and unique individuals. We need to know how to nurture them in the specific ways that take them closer to what they would be happy to be – that is, we need to understand how to influence their learning. We cannot influence them directly, but we can influence the way they learn.

Through the developmental years that overlap with school education, parents must understand four basic pillars of learning to make the most of these years. A deeper understanding of the four pillars of individual learning can help parents become impactful participants in their children's development –

1. *Reading* – Reading is the most active aspect of learning. Learners must have an insatiable appetite for reading. Good learners use reading as their first and primary means of new explorations, rather than seeing, listening, or doing.
2. *Language* – Extensive literary reading is the key to becoming competent in a language, and language is the key to accessing, processing, retaining, and expressing knowledge. Competency in the language of the texts in a subject is a stepping stone to understanding that subject.
3. *Learning* – Armed with competent reading skills that give rise to academic-level language competency, individuals can become gifted learners. Language competence also helps in learning by making nuanced understanding and expression of concepts possible.
4. *Memory* – While learning is how our stock of knowledge/images/'reflexes' changes, the stock itself is called 'memory'. Memory is also a critical player in processing thoughts in our brain. Memory multiplies our individual capacities. We will now explore each of these pillars in necessary detail.

Reading

> *"The man who does not read has no advantage over the man who cannot read."*
>
> *Mark Twain*

At the outset, it must be acknowledged that we do not really know much about reading other than the fact that it is a deeply neurological process, making great demands on the brain. Transformations due to extensive reading have been observed in the parts of the brain that support the emergence of reading skill(s); reading is also linked to the physical development of the brain.

Broadly, the brain functions involved in reading are –
1. The visual aspect of recognizing shapes, symbols, and pictures.
2. The phonological (sound) understanding and relating it to written words.

Neuroscience has just begun to understand what happens when we read by monitoring the areas of the brain stimulated while reading. There are, in fact, several strands at the neurological level that we know little about – the exact role of memory in reading, how emotions play up when we read, whether reasoning and problem-solving skills come into play when we read, etc.

At the same time, we take reading for granted. We do not think about it as involving complex brain activity. It is only when we must teach someone else to read that we realize its complexity. Reading is among the most sophisticated and demanding tasks that our brain indulges in.

The one thing we do know about reading is that it is the 'most recent mode of acquiring knowledge', just around 2,500 years old. The three other modes of acquiring knowledge are listening, seeing, and doing. All forms of life – from the simplest single-celled animals to the biggest mammals – learn using either a subset or all three modes. Nevertheless, there is little appreciation for reading as the primary mode of learning.

A comparative table of reading vis-à-vis doing, seeing, and listening as a learning mode along several dimensions is given below. A scale of 1 to 5 is used, with '1' signifying 'least fit' and '5' denoting 'best fit'.

Dimensions		Reading	Doing	Seeing	Listening
Interactivity	Generating vivid imagination	4*	5	2	3
Variety	Range of available content	5	1	3	3
Cost per unit of learning (lowest cost = '5')	Cost of accessing the content	4	1	2	2
Control over time	Flexibility of time and pace of learning	5	2	1	1
Benefit per unit time	Achievement of learning objective per unit time	4	4	4	3
Depth	Ease of availability of higher-level content in the subject being explored	5	2	2	2
Access	Ease of availability	4	1	3	3
Language development	Helpfulness in increasing language competency	5	1	2	2
Cross-disciplinary	Association with sub-jects other than the one being investigated	4	4	2	3
Total points (9 dimensions)	A possible total of 45 points	40	21	21	21

*Reading could be 5 but is conservatively placed at 4.

Here is what we must understand from this comparison –
- ➤ Reading and doing have the potential of offering two-thirds of the learning opportunities.
- ➤ Reading is nearly twice as powerful as a learning tool compared to the other three – seeing, doing, or listening.

Reading is the most powerful of the four vehicles of learning. It is not too farfetched to see a link between reading and Aristotle's timeless eminence. He is considered the first person to have 'grown up reading books' (hand-written manuscripts, to be accurate).

However, no introduction to reading is complete without understanding the research agenda on reading. Here is a sample of the same –
- ➤ Understand the dynamic nature of reading – many aspects of reading resemble generic problem-solving or reasoning skills (deducing the meaning of an unknown word in a sentence is a very common example).
- ➤ Written words have strong visual associations and give meaning to sentences.
- ➤ Words and their sounds are correlated.

Reading can drive readers to intensively imagine, interact with, and even visualize the content. We also know that reading is not a treasure hunt for main ideas but a journey with the writer. Pulitzer Prize-winning American poet Robert Frost had once said, *"Everything written is as good as it is dramatic."*

Reading is an acquired skill – we have to learn to read. The earliest record of a written language (an organized system of symbols) dates back around 4,000 BC. As a skill for the masses, however, it is only a few centuries old. The invention of the printing press in the middle of the last millennium placed reading at the center stage of learning as it enabled easy access to huge amounts of content.

At the most basic level, when we read, we scan in a serial manner (left to right or vice versa) the images of the symbols of the language we are reading in. The magic of reading lies in 'what' we scan as one

'unit' – each letter in a word, each word in a sentence, each sentence in a paragraph, or each paragraph in a page. This means that children can learn any language if given proper exposure. Reading abilities, to a certain extent, do depend on a language's characteristics. The strength of the visual phonological bonding with respect to the letters, words, and other symbols varies across languages. For instance, languages with predictable spelling-to-sound patterns (for example, Hindi) will be easier to read than languages with weaker consistency in mapping letters and sound (for example, French).

Special mention must be made of logographic languages such as Chinese, Korean, and Japanese. There is a stronger relationship between character-writing and reading abilities in these languages and a weaker relationship between phonological skills and reading abilities. In other words, orthographic competence (art of writing words) is more critical than phonological competence in such languages.

Our eyes jump from image to image as we read. The images we scan are called 'saccades'. The jumps, or saccades, are very small if we scan/read 'each letter of the word', somewhat longer if we scan/read 'a word at a time', longer if we scan/read 'a sentence at a time' and really long if we scan/read 'a paragraph at a time'.

Competent readers make forward and longer saccades while the weaker readers make backward and shorter saccades. The latter often have to reread as they cannot 'process words' at one go.

We can increase the size of saccades by reading more text volumes and becoming better readers by reading varied genres of text. We must read texts with longer, bigger, and more complex plots. Newspapers and magazines are for novices to build rudimentary reading skills.

Here is an interesting exercise to better understand reading. Try reading the text below. The faster you finish reading it, the better reader you are.

Jumbled Text

"You wlnduo't bvleiee taht you culod aulaclty uesdtannrd waht you are rdnaieg. Unisg the icndeblire pweor ahceievd by pnicraictg rdinaeg oevr the yraes, you can 'sacn/raed' wrdos. It dseno't mttaer in waht oderr the lterets in a wrod are, the olny irpoamtnt tihng is taht the frsit and lsat ltteer be in the rhgit pclae. The rset can be a taotl mses and you can sitll raed it whoutit a pboerlm. Tihs is bucseae your mnid is not rnaedig ervey ltteer by istlef, but the wrod as a wlohe. Aaznmig, uhh?"

Actual Text

"You wouldn't believe that you could actually understand what you are reading. Using the incredible power achieved by practicing reading over the years, you can 'scan/read' word. It doesn't matter in what order the letters in a word are; the only important thing is that the first and last letter is in the right place. The rest can be a total mess, and you can read it without a problem. This is because your mind does not read every letter by itself but the word as a whole. Amazing, huh?"

Though spelling is very important for reading, for an expert reader, words are just images in anticipation of the meaning of the sentence or the larger context of the text.

To sum, **reading is a skill** and like all skills requires continuous and rigorous 'practice' for improvement.

Learning to read lies outside the original (that is, genetic/by-birth) repertoire of the human brain's functions and requires a whole new 'circuit' to be built afresh for every child. Unlike being able to see or speak, there is no genetic blueprint for reading, and the brain changes itself to suit individual reader's medium of reading, level of reading, frequency of reading, content of reading, etc. Expectedly, the very plasticity of the brain with respect to reading – that is, the facility that allows novice readers to build their new circuit to read efficiently and effectively – is not only an asset but also an Achilles' heel. For an avid reader, reading becomes easier by the day, but for an infrequent reader, reading becomes harder by the day.

Reading may perhaps be the most complex human activity as it requires the 'deep integration' of over a dozen processes such as analogical thought, inferential reasoning, perspective-taking, critical analysis, imagination, insight, novel thought, etc.
Here are a few samples of such processes –

Details of the process	'Sub-processes'
Philosophical process	
This represents the thoughts that may emerge about the deeper meaning of knowledge, reality, and existence as we read a text.	Philosophical analysis, insight, generalisation, abstraction, metacognition, etc.
Creative process	
The new perspectives and insights that emerge as we read a text. Novel thoughts, along with imagination and projection, may also emerge as we read a text.	Analogical thoughts, inferential reasoning, inductive reasoning, deductive reasoning perspective-taking, novel thought, imagining, projecting, etc.
Critical process	
The independent conclusions we may arrive at about situations and facts contained in a text.	Systems, thinking, critical analysis, deconstruction, diagrammatic reasoning, estimation, concept map, morphological analysis, etc.
Memory management	
The issues of recall and visualisation being concurrent with a text being read.	Intuition, semiosis, recalling from 'back-end memory' to connect to the working memory, enriching long-term memory while reading, etc.

Emotional processes	
When we read something, we often find ourselves emotionally sensitised and engaged with the storyline, characters, themes, and places mentioned; events narrated; and time period and situations presented. The emotional rollercoaster a text makes us experience is an important reason for remembering it long after reading it.	Feeling empathetic, sympathetic, joyful, gloomy, sad, hateful, etc.

It takes years to deeply align all the relevant processes of reading

Reaching that level of neurological sophistication requires enormous volumes of reading daily. It is impossible to achieve this at school, so it is important to develop the appropriate reading habits at home. Having a role model in the form of a parent who is an avid reader can help develop children's reading habits; in fact, an adult role model is an absolute must to 'provide company' during the difficult journey of learning to read.

Expert readers 'converse' with the author as they read – they juxtapose their views, knowledge, and expectations with how the author presents them. For such readers, *it is less about gaining 'new' knowledge from reading and more about fine-tuning their existing frame of reference for several things.* They draw a whole world of 'meaning and perspective' from each book they read.

Obviously, it takes years of regular reading to reach the threshold level of ease with the different processes involved in reading; *training one's brain to prepare itself to integrate all the processes is the skill that reading is all about.* This is also why reading is the most demanding and effective exercise of the brain. Reading and rich conversations are the food and exercise for the brain.
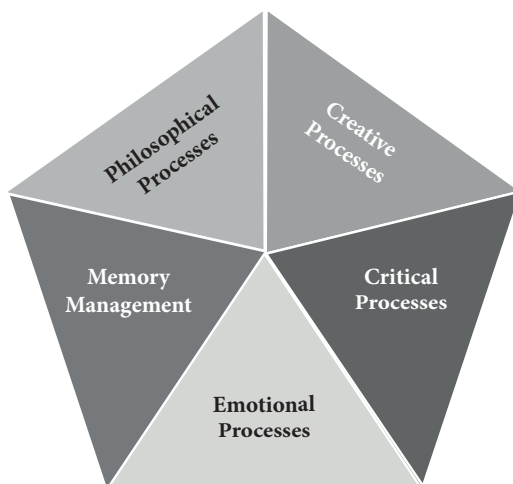
Furthermore, reading as a skill cannot be taught once and for all within the primary school years (up to Grade V), and it must not be assumed that it is reduced to a matter of adding newer vocabulary for the years beyond the primary grades. *Reading must remain an important part of the 'curriculum' for all stages of education.* Incidentally, this also brings out an important aspect of achieving higher competence in a language – the difference between the role of listening and the role of reading in determining the quality of language learnt.

In general, *a language that develops primarily out of extensive reading will be of a higher quality* than a language developed primarily out of speaking in the language in a social context. The reason for this difference is the fact that the diversity, complexity, and structure of written texts are far greater than that of spoken words. Children will become competent in English by extensively reading in it.

Unfortunately, many countries have a limited culture of reading, and few homes read every day. Of course, we are not talking about reading newspapers or magazines – developing reading as a skill in the school years requires a very different level of preparation, which is reading a few pages every day and, ideally, from diverse genres.

Reading is perhaps the most powerful educational skill, and it must be 'taught', learnt, assessed, and 'remedied' as an independent subject on the same pedestal as and with the same rigour of a subject like math. Here is a list of reasons that explain why reading is a very fundamental educational skill –

1. *Improving concentration* – Reading is one of the best ways to improve concentration.
2. *Improving mental ability:* Reading is the best exercise for the brain, far ahead of the most demanding brainstorming sessions. We often undermine the brain's need for exercise – it needs to be exercised as much as our body.
3. *Improving language competencies* – Reading literature is the only way to enhance wordplay and explore the many nuances of a language, both vital for rapid and wide understanding and written/spoken expression in the language.
4. *Short-term memory management* – 'Efficiency' is the key issue in working memory management. A maximum of 5–7 distinct elements of thought are processed by the brain within 7–12 seconds when the short term memory management is working efficiently. Weak reading skills lead to poor language skills, which greatly increase the number of elements to be processed within the few seconds' window of working memory. Poor readers are unlikely to quickly process anything more than simple commands, arithmetic, or conversations. Weak readers can't intelligently/properly appreciate academic conversations, lectures, speeches, debates, etc. can't be intelligently/properly appreciated by weak readers.
5. *The best mode for learning anything* – Reading is the best of the four modes of acquiring new knowledge.
6. *Improving the power of imagination* – Interestingly, reading offers the most personal interaction with content because it is an amazingly imaginative process where no two readers reading the same content will embark on the same journey of meaning, joy, and decoding context.

7. *Logical thinking* – A 'reading brain' is far more logically adept than a 'non-reading brain'.

8. *Reading math and science* – Acquiring math and science through reading (and thinking) as the primary mode is definitely not an inferior approach. Two of the greatest physicists of all time, Albert Einstein and Richard Feynman, were both theoretical physicists who performed only thought experiments for their remarkable contributions.

9. *Expanse of understanding* – The richer the language, the quicker it is to understand the widest domains of knowledge.

10. *Personal development* – Reading is the cheapest and best way to learn to appreciate diversity, differences, and commonality (all classics are actually timeless human stories). Also, very high reading skills are a pre-requisite quality for leaders in organizations; for example, they must personally sift through hundreds of emails every day.

At the end of the day, reading helps children become better at academics and contributes towards their overall development. Reading builds powerful new pathways within the human brain, engages many regions of the brain, ignites regions of our neural networks that can lead to enhanced brain function, impacts our physical and emotional state, and help us in developing empathy and internalising social values.

A research study by Emory University showed the areas of the participants' brains that demonstrated significantly heightened activity on reading books. This biological response persisted over time, even during times when the participants were not reading. Interestingly, the area of the brain called the 'central sulcus', one that is closely related to motor functions such as (left/right) handedness, also showed signs of neural activity while reading.

The implication of this is that if you are reading about a hero who raced through a jungle only to jump off the edge of a terrifying cliff into the raging river below, you just experienced the power of the sulcus. This means that reading activated the same neurons in

your brain that would have been activated had you jumped into that river yourself. A study published in the Journal of Applied Social Psychology found that students who engaged in perspective-taking activities using works of literature were associated with improved attitudes towards stigmatised groups such as immigrants and refugees. In general, perspective-taking manifests in the debiasing of social thought.

Schools' role

There is bad news for parents – schools only have a secondary role in cultivating reading skills among children. Homes, role modelled by parents, are the primary spaces for developing higher-level reading skills. Reading is a highly intensive, non-reflexive, time-consuming, and collegial activity, not suitable for competitive, time-tabled schools.

Schools nonetheless must play the role of primary planners, assessors, and coaches for reading skills for children whose parents are not skilled readers. Short on reading culture and varied reading resources, most homes cannot conceive and enforce the discipline of joyful reading. Thus, the task of planning and monitoring reading content at home is a critical contribution schools have to make towards developing the reading skills of students.

The key tasks in the schools' share of responsibilities for maximising reading skills are –

1. Create more contexts or opportunities for reading at home daily: Teachers should stop reading textbooks in classrooms and instead encourage students to read the text beforehand at home. Reading should be the primary mode of learning for students, and they should be required to thoroughly read all the prescribed textbooks, cover to cover, as the first step towards learning the content of the syllabi during the year.

    A clarification, each school textbook (of various subjects) is a day's reading worth! Reading textbooks is NOT the reading we are talking about! Children should read storybooks.

2. Devise multiple strategies for assessing reading skills: Parents are clueless about assessing reading, and schools must use standards and benchmarks to assess reading gains and give feedback to parents on the improvements needed in reading style and content.
3. Ensure adequate opportunities at school for students to give expression to the reading done at home: Conduct daily discussions/ essay writing/critiques of the content of the reading done at home.
4. Ensure the widest genre of reading for every student: Filter appropriate content for reading fiction, science fiction, historical fiction, religious stories, travelogues, non-fiction, etc.
5. Encourage reading in all the languages being taught: The language of instruction should be prioritized, but all other languages must also be read extensively.

To summarise, schools are critical for the development of reading among children, but the primary reading space is home.

Parents' role

Some practices that parents can consider incorporating into their homes to establish good reading habits are –
1. Suggest reading material to your children based on their current reading skills (and interest). Age or grade is no determinant of reading level or competencies.
2. Support and lead children to read across genres and different authors in the same genre in addition to their personal preferences. Stock books of all genres and keep upgrading the stock. Do not fuss over lack of diversification in the genre, lest it stops them from reading.
3. Reading can be used as a means to develop other skills. For example, reading novels and drama can enhance overall creativity.
4. Set an example for your children by reading daily in their presence, or, even better, creating time to read together. Discuss the material being read and give children the space to make and set their opinions (and revisit them later if new information comes to light).

5. Read some of the books that your children are reading as they
    need someone to talk to about what they read. Find 'reading
    friends' for your children – children who are reading the same
    books. It will reduce the demand on you to read their books.

Language

> *"With the help of words, children enrich their relationship with the objects they come in touch with."*
>
> *Dr. Krishna Kumar*

If we can figure out the relationship between intelligence and language, we can connect language and learning. Another way to look at it is – did humans take bigger leaps of progress with the invention of language? Yes, we did. We did not have any real language for a good part of our evolutionary history, and for this time of our existence on earth, we evolved slowly. Hence, it is safe to assume that there is a correlation between intelligence and language.

Pertinently, the one component common across all multiple intelligences is 'thinking'. To have intelligence is to have the ability to 'think through'. Intelligence and thinking are two sides of the same coin.

However, our thinking is best done in a language, as language is the simplest of all tools. People born with severe hearing impairment think in terms of images and we too can think without a language, but the symbols that languages give us (millions of words) assist us in freezing ideas, reflecting on them, and holding them up for observation are the simplest. The use of language allows for a level of abstract association and reasoning that we cannot achieve otherwise. Abstraction of anything expands its application and value. Math, for example, is such a valued, common language for physics, chemistry, digital technologies, biology, psychological research, and artificial intelligence because it has been highly abstracted.

Thoughts that do not have a 'language equivalent' can never be formulated so effectively in spoken words or written text. For example, it would not be easy to explain the concept of acceleration as 'meter per second, per second' to a caveman! For that matter, thinking about a cat in terms of images is also highly restrictive, limited to our very surface-level knowledge of a few types of cats. Thinking about cats in a language can easily allow a fluid extension to include pets like dogs or members of the cat family - lions, tigers,

etc. Similarly, red as a colour in pictures is relatively restrictive compared to the use of red in a language (it is just red). In the English language, red is richly used as 'red tape', 'red carpet', 'red card', 'to be in the red', 'red-letter day', etc.

It is also pertinent to briefly touch upon the science of poor intellectual development resulting from the rote method. When we memorise something without understanding it – the rote way to 'learn' something – we are committing images of the text to memory rather than the symbols of the language. The potential manipulations and the amount of context in pictures are poorer than in the case of language symbols. Unsurprisingly, intellectual development is far lower in rote-based memory.

For example, the most worrisome reflection of rote learning is the 'complete amnesia' of the content learnt a year back in the previous grade. There is no development of concepts, logical association of concepts, a linguistic association of names of phenomena, a marriage of concepts and experiences, or the ability to paraphrase known texts.

Most of us take language simply as a means of communication. Communication is a complex combination of feelings, imagery, nonverbal cues, values, philosophical ideas, etc. As discussed earlier, language is indeed a very expansive ability. Naturally, it plays a critical formative role in children's development. It acts as a subtle yet strong force, shaping children's interests, perception of the world, capabilities, and even values and attitudes.

Good language skills are critical for overall development and not just for good speaking skills.

How did we learn our mother tongue?

Almost magically – just by listening to our family members and neighbours talking to us and each other. No special effort is needed to learn one's mother tongue – on the one hand, merely hearing a language constantly is important, but on the other hand, opportunities to express oneself and the quality of feedback available on every expression is also necessary. The following are the

five commandments of learning a language in terms of listening and expressing in it –

1. Exposure to a vast vocabulary and its usage in various genres of text.
2. Constantly listening to the language being used in multifarious contexts – from long debates to terse conversations – to gather exposure to structuring of sentences.
3. Extensive opportunities to express oneself in the language.
4. Thoughtful use of vocabulary and structure and being able to observe its impact on others.
5. Immediate, consistent, and detailed feedback received on one's usage.

It is safe to say that language learning is an almost autonomous but highly contextual human facility.

Children are capable of learning and communicating in multiple languages if exposed to them from an early age. Each language is unique in its own way. As long as parents ensure that their children listen to the language being spoken and have avenues to express themselves in the language, children would be able to pick up any language.

Languages are critical for rich conversations (two-way dialogue), and conversations are an integral part of living a language (i.e., beyond getting lectured or instructed), and they affect learning in that language.

Conversations are critical to learning anything

To explore the role of conversations in learning anything, it is naturally expedient to start with revisiting the reasons for learning. The significance of conversations in learning will be soundly established if conversations help in improving the quantity, pace, and quality of learning. In other words, if conversations reduce the time and cost or increase the scope and depth of learning, it would be fair to say that conversations are a critical tool for learning. Let us explore the role of conversations in improving the quantity, pace, and quality of learning –

1. *How do conversations help us know more* – To know more than others, one has to know more than what lies in the easily-accessible common spaces such as textbooks, teachers' notes, and popular social or knowledge portals. The two most obvious sources of 'extra'/supplementary knowledge are exclusive reference books and the people who are experts in the domain. If one could reach out to a diverse set of people with expert-level knowledge or unique experiences in the concerned domain(s), one would expect to get varied and unique perspectives on it.

   It must also be obvious that securing additional knowledge through personal conversations with 'experts' is generally more exclusive than accessing reference books: one can buy access to reference books, but not to experts (in most cases). To clarify this point, the video lectures of experts are not a source of creating more comparative knowledge, but sending a query and getting a response can be a source.

2. *How do conversations help us recall faster* – Recall is a matter of something being at the top of one's mind. How can we ensure more things remain at the top of our minds? By frequently recalling them. The more a topic is revisited, the easier its recall is. There are two ways to revisit a topic – the first is personal 'revision' (revisiting class notes, books, homework, test/exam papers, results, etc.), and the second is conversing with someone on the topic. The latter is a far more enriching revision opportunity as it also adds 'newer threads' to the content of long-term memory, facilitating its recall in more varied contexts in the future.

   Conversing with others is a far better tool for faster recall because conversations can never be scripted, and they always throw up new perspectives or make us recall things we may not have otherwise. Conversing brings up more diverse things 'to the top of the mind'. The 'non-conversational' method of revision will not usually throw new perspectives based on the books, notes, and test results we may have already been through many times.

3. *How do (good) conversations increase the speed and quality of learning* – Among the most distinctive features of a good

conversation is the 'speed of exchange' and the liveliness of the interaction. In turn, a good conversation demands higher-level thinking skills – a level of thinking that quickly processes the flow of facts, feelings, ideas, imaginations, and assertions; recalls appropriately, and responds immediately. One cannot be engaged in a good conversation without active listening, faster recall, and considered reply – the three building blocks of learning quickly.

Expectedly, good conversations enhance the speed of learning. Good conversations are also more open ended and let many more facets of a subject emerge, enhancing the quality of learning.

In short, the simplest, most effortless, and enjoyable way of practice/recall are through conversations! As a result, conversing is the best vehicle to learn something new or sharpen existing knowledge, skill, or attitude.

Schools' role

While schools are responsible for teaching children languages –specifically the language of academic texts – there is mostly a shortage of the right teachers for the same.

There are multiple reasons why your children might not be able to substantively pick up the language of academic texts at school (English is being cited as an example as more people can relate to it) –

1. The number of English words and phrases spoken around your children may be limited. Hearing English only in the English period – 40 minutes out of 6 hours of school – is grossly inadequate.
2. The English language teachers may not be proficient in it, so children may pick up their limited vocabulary and/ or wrong grammar. Unless the teachers are voracious readers of English literature their language will be 'good communicative level' at best. This level is only good for teaching a language as a subject (for example, as the second or third language), but not as a medium for transacting academic books.

3. Children may not get enough opportunities to express themselves in the English language.
4. The English language competence of the non-language teachers may undo the gains, if any, in the language periods. For example, the math teacher may not be using correct grammar when speaking the language while teaching.
5. The 'level of language' required to read, comprehend, and express concepts of math, science, and social studies is fairly high.

The level of teaching English the medium of academic books is a huge shortcoming of school systems across the world. It is fairly common in the current evaluation system for students to score very high marks in English but struggle with its usage in other subjects and fail to proceed beyond rote definitions (that is, they cannot 'construct a definition' of a concept by themselves even if they 'know' what it is). Thus, it is quite common to see many children having good spoken English in everyday conversations but feeling handicapped when required to learn in English.

Broadly, all languages are transacted at four levels, expressed in terms of the size of vocabulary –
  ➢ *Basic* – having a command of over 500–1,000 words in the language
  ➢ *Communicative/functional* – having a command over 1,000-10,000 words
  ➢ *Literary* – having a command over 10,000+ words
  ➢ *Academic* – having a command over 20,000+ words

Outside of vocabulary, it would be difficult to make broad generalisations of dimensions of language competence that could be meaningful to and actionable for parents. For the sake of elaboration, the other dimensions for measuring levels of competence in a language could be – spelling mistakes per 1000 written words, grammatical mistakes per 1000 spoken or written words, speed of reading a text (for example, words per minute), creative write-up, etc.

A few relevant lessons from the four-level language competence are –

1. The second language, third language, etc., taught in schools are targeted to be at a communicative level (it is at this level that we use 'language labs'). This level equips one to listen and speak fluently; read newspapers, short stories, and business texts, but not scientific/academic texts as reading is limited in genres. Children in France learn German at this level to socially communicate in German when they visit or work in Germany.

2. The first language, the language of academics, has to be targeted at an academic level. This level can only be achieved by 'going through' the literary level and extensively reading literature in that language. This level of competence cannot be taught. It is self-learnt, essentially by reading literature and academic texts.

3. Literary level competence is only achieved through reading literature in that language.

4. One can be an outlier at the basic and communicative level of language competence and thus could give a definite impression of literary level competence. However, the richness of conversations that one routinely indulges in would indicate the real competence level of the person.

5. Literary and academic level competencies are distinct levels. The latter is achieved only by reading multiple academic subjects in that language (ideally undergraduate education).

For example, a Ph.D. in the English language doesn't prepare one to appreciate the meaning of accelerated motion (an exponential curve), or quantum jump (in language it is a big jump, but in physics, it is the smallest jump possible).

Years of on-the-ground experiments in learning English language among children, across the socio-economic divide in India has helped us develop the following list of five changes to improve the outcome of language teaching and learning –

Key conditions for effective language learning	What is being done in our classrooms
Learning a language makes limited demands on the general intelligence ability ('g').	By teaching grammar rules upfront and expecting children to write and speak after recalling and applying the grammar rules, 'g' becomes important, thus violating the fundamental condition for learning a language.
The use of 'rules' should be dealt with later after comprehension and expression of thoughts have fairly matured. Grammar rules should also be first learnt through the ears (reading or self-talk, conversations), much like other parts of a language.	The power of reading in supporting correct grammar usage is not factored in; it is limited to a few paragraphs of a story at a time. Rote memorization and 'out-of-context' assessment of grammar.
Reading homes are a non-negotiable must for improving English language skills, beyond the basic or communicative level. Extensive reading is the only way to get English language competency to the academic level.	In our schools, we teach mother-tongue (not at literary level) and English the same way. We do not differentiate! In fact, mother tongue cannot be an academic language if it is not taught at a literary level. In India, English is the language of academics; no meaningful undergraduate education is possible outside of English.

Language is first, and foremost, a means of communication of information, ideas, experiences, and feelings – real or imaginary.	From day one, spelling, grammar, pronunciation, presentation, etc., are part of the assessment, killing initiative, and incentive to creatively think and express volumes in the language.
Primary school years must focus on long read, writing, speaking, and listening skills – letting ideas and words flow uninhibited, without 'rules' of grammar, spelling, pronunciation, etc.	The focus is more on pronunciation, instead of respecting the family and community contexts of students, and then there is the unreality of imposing a specific pronunciation. An accent-neutral pronunciation is not left to students as a personal journey with the language.
Assessment should dispro-portionately reward length and 'story', and penalize only at a token level wrong spelling, grammar and presentation.	Assessment has a very high proportion of 'rote-based' grammar. Thus, students score marks much more than their ability to think and express ideas, experiences and feelings in the language.
The teachers' competence must be at the literary level. Language teachers themselves can't be at a communicative level, even if they are teaching a second or third language. For, there would be students with literary-level competence, and they would be hurt.	Teachers' recruitment and development rarely focus on literary level competency. Thus, the school system doesn't understand the 'threat' to a student who may use 'marble' to describe how the earth looks from space (a correct but literary expression). A teacher without exposure to literature will not appreciate it and mark the description as wrong.

In the language of the academic books, only actual works of literature may be used as reading and teaching resources. Creative writing, grammar, spelling, and other structural lessons are to be drawn from within the texts read or the student's own written texts. Assessment to focus on diversity, depth, and creativity in interpretation and expression.	Assortment of abstracted stories, each few pages long, remains the norm for textbooks used in academic language learning. There is almost no difference between second language and first language (academic language) textbooks, except for more volume in the latter textbooks. Assessment is (story) fact/recall based!
Teaching of second and third language should focus on grammar, spelling, and spoken skills from the beginning. But open-ended and creative spoken and writing skills remain important, much like academic language. These languages are not adequately 'heard and reinforced' outside of school and therefore need more 'structural support'. Literature reading should be introduced later.	Schools go completely overboard on grammar and spelling and kill the confidence of students in using the language. Every spoken and writing exercise is overly assessed for spelling and grammar. Assessment is also overly focused on grammar, spelling, and structure, granting scores way above the student's actual comfort and competence. Literature reading is never achieved.

To summarise, children must achieve academic-level skills by extensively reading literature and open-ended writing in the language of academics.

Parents' role

Parents who read and a book-friendly home environment plays a pivotal role in language development.

Parents must allocate time to converse with their children in the language, giving children immediate and detailed feedback as and when necessary. These conversations should cover a wide variety of topics and genres. Animated debates and discussions would further speed up this process. Parents must use the language to converse with other people in their children's immediate environment as well. Other family members, friends, neighbours, etc., should also be encouraged to converse in that language.

Parents can leverage audio-visual aids, such as specific TV programmes, Internet videos, and other relevant resources for languages that parents and other people in the immediate circle cannot converse in. To start reading in such languages, finding other children and families with similar needs or familiarity in the languages is the best option.

Hiring experts in the language to read, converse, and creative writing is another interesting option. Don't spend time and money on learning grammar and school worksheets/tasks in the languages. Importantly, a good reader in one language has a much higher chance of becoming a good reader in another language, compared to someone with no reading competence in any language. In other words, low reading skills in English, but good spoken comprehension can be evolved to develop competent reading in English without much stress if one has excellent reading skills in another language. Specifically, learning to read in English can be far easier for people with good reading skills in their mother tongue and a grasp of basic English vocabulary. A family targeting competent reading skills in English for their children may start early, when they are 3 years old, by reading together everyday in the language that parents can read (at least one parent, ideally both must participate). By Grade V, children should become proficient in reading in that language – an ability to read over 100 pages of

a work of fiction in around 5 hours. Reading fiction is a better choice than non-fiction for its imaginative narration.

Over the next three years, from Grades VI to VIII, children may be encouraged to start reading in English all by themselves. They will not struggle at this task because they would have mastered the more difficult part of the reading that transcends the language used, the visual and phonological skills of reading texts. They may start by finishing 10–20 pages of stories in 5 hours, but within a couple of years, they will be able to joyfully read 200 pages of fiction in English in about 5–7 hours!

To summarise, a language-rich context and a reading home are all that is needed for language development during the early years of childhood.

Learning

We all know what learning is, but defining it in one concise sentence is difficult for everyone. Off the top of their heads, most people cannot. Even when they come up with a definition, they continue amending it as more and more aspects of learning and education continue to occur. With that reality in mind, let us talk about learning.

We will first understand what learning is NOT; you will find out that it is easier this way –

1. *Higher marks or grades* – These do not necessarily reflect better learning, given the way we design, evaluate and report outcomes of assessments. For example, does it necessarily imply that someone who scored 85% in a test on a topic knows less about the topic than someone who scored 95%.

2. *Reproducing material or content from memory* – This is not necessarily reflective of the level of learning in a 'language deficient', rote-based learning environment. For example, we may memorise the definition of prime numbers, but without understanding why they are the 'prime of the numbers', eventually forgetting the definition along with what prime numbers are.

3. *Theoretical knowledge* – Merely having information on subjects or topics without the commensurate skills and attitudes associated with them is not effective learning at a time when access to a horde of such knowledge is just a click away. For example, there is no real learning in being well-informed about the need to exercise, but one needs to be skilled at doing any kind of exercise and needs to inculcate a discipline required for exercising.

4. *Quality of school work* – Correct, neat, and extensive classwork and homework do not necessarily indicate the level of learning of the content of classwork and homework. Mistakes, shifting perspectives, and different presentations are all closely associated with good learning. For example, a quick quality test of a school

is to walk inside a classroom and check the 'neatness, correctness and similarity' of the classwork content in the students' note books. The greater the similarity in work among students, the poorer the quality of learning of individual students.

5. *Being good in isolated topics/concepts* – This is not necessarily a sign of good learning because learning is an ability/process and cannot really be achieved in silos. For example, one is not likely to be good in trigonometry unless one is good in geometry. Likewise, one cannot be good in physics unless one is good in certain sections of math. We will next explore how learning is not about developing an ever-growing stock of knowledge.

Based on this discussion, we can define what learning is –

1. *A qualitative increase in the capacity to learn 'new things'* – It is about 'learning how to learn'. For example, having good knowledge of units of measurement in math is reflected in the ability to do quick and correct conversions of one unit into another in physics.

2. *Being 'alive' at all times* – Actively using prior knowledge/ experiences in a situation. There is a continuous construction and deconstruction of knowledge, and learning lies in the continuous application of knowledge. For example, a learner has a far lesser chance of slipping on a similar surface twice (because that would be making the 'same mistake' twice and 'not learning from a mistake').

3. *A 24 x 7 process* – A learner is always learning and from every situation – formal as well as informal. For example, a learner learns science outside the class while observing, experiencing, experimenting, and reasoning in everyday situations.

4. *A system* – This is reflected in changes in knowledge, skills, and attitudes, as well as in-creasing 'cross-connections' across domains of memory (like multi-disciplinary linkages, multi-sensory integration). For example, a good music learner will be skilled in creating 'correct' music (melodious and rhythmic) and think about creating/ensuring the right mood and environment to present it.

5. *A personal process* – It is greatly reflected in the uniqueness of one's class notes, responses, replies and parenthesis. For example, no two learners will give the same instance for one topic, and their examples are likely to change depending on the audience, context, expectations, subject, or just the wish to throw new examples.

Learning is a very personal process because our personal experiences trigger our thoughts. For example, many people may see a wrapper lying next to a dustbin as they walk by, but not everybody would react to it in the same way. Someone would only see the redness of the wrapper and instantly think about other red things, someone else might see the wrapper and get reminded about taking their trash out once they are home, someone might think about the environmental consequences of littering and throw the wrapper in the bin, someone else might think about reducing the cleaning authority's workload and throw the wrapper in the bin. All these variations depend on an individual's unique experiences.

So how exactly do we learn?

We learn through our sensory organs and their interactions with the brain. We learn when a change occurs in our brain in response to new 'sensory inputs'. To draw an analogy, think of our brain as a 'telephone exchange/network' and each incoming call as a potential source of new inputs and each outgoing call as a sign of the processing of knowledge, a sign of learning.

Though our brain is a million times more complex than the most sophisticated network, the two kinds of changes possible in any network are also possible in our brain:

1. Our brain makes new connections when we see things from 'new angles' or undergo new experiences, which is similar to the addition of new telephone numbers. When we read, hear, see, or do (experience) something new, we take the first step towards learning it.
2. Our brain's existing neural connections are strengthened when we repeat things by way of practice or recall, which is much like

installing amplifiers and laying optical fibres along more used call routes. For example, to learn music, we repeat the notes and tunes at least a hundred times; we practice the same moves, catches, throws, lifts, leaps, stretches, and stances for years to be proficient at a sport; to master a language, we read and converse continuously for years on end; to master math, we continually 'think, talk and train mathematically'. 'Practice makes perfect' is the conclusive and continuous second step in learning.

Of course, the aforementioned two are interactive processes that are the fire and the fuel to keeping the flames of learning burn bright – an exclusive privilege of Homo sapiens!

Learning is an exercise for our brain, being a conscious learner is a great way to keep the brain working. The hallmark of a conscious learner is being a thinker. We cannot learn unless we think. Thinking is a workout for our brain. And we all know that the brain (and mind) is the only thing that grows with use; thinking does not cause friction in the brain. We all should encourage everyone around us to think, think more, and think again. Learning is the other name for thinking; the better we think, the more we learn.

We must build the future of education on solid research, not convenience!

The more we understand from neuroscientists about the functioning of the brain (which is almost synonymous with how we learn), the more tools we amass for improving teaching. Improved teaching could have an unparallel impact on children's learning!

Teaching has a poor correlation with students' learning. Teaching a class of just 5 students (let alone 40) is also no guarantee that all 5 students will reach similar levels of understanding of the subject. In this context, the verdict on the efficacy of the classrooms (the man-made catalyst for learning over the last 200 years) is uncontested – we cannot learn while being taught.

Learning in schools – how it has changed in 200 years

Here is a comparison of how we learn in schools today and how it was envisaged in the 1820s. We will make this comparison along five dimensions of learning –

In the 1820s	In the 2020s
Dimensions of learning: **Goal**	
Content from textbooks was the 'end-all' of school education.	**Ditto.** Worse, seeking knowledge is limited to 'testing boundaries' and often, only teachers' favourite topics or questions are discussed at length.
Dimensions of learning: **Nature of knowledge**	
Memory-based knowledge (assimilation of textbook content).	**Ditto.** Worse, the exact reproduction of words and phrases from the books or teachers' notes is all that is expected. Many teachers may not have the time, language, and knowledge to correctly evaluate open-ended responses from students.
Dimensions of learning: **Reading**	
Reading was not the primary means of learning. It didn't matter because text-books were literally the only books available to the masses.	There is so much to read now. Multimedia has pushed reading and 'doing' to tokenism. And more importantly, we are living in an amazing era of explosion of books – curated content to read. Yet is not the primary means of learning.
Dimensions of learning: **Nature of learning at home**	
There was no new learning expected at home. Homework was the extension of questions discussed as classwork (no new questions or reading material was prescribed as homework because parents were mostly not schooled).	**Ditto.** As the nature of homework has not changed, there is no time or motivation to read ahead of class. Worse, parents do not favour it when children want/need to read ahead since it demands their time and attention. No new learning is happening in most homes; homework is almost totally 'school-led'.

Dimensions of learning: **Following-up on learning**	
Just a formality: Remedial classes were very brief, where the content was repeated from classroom teaching. They were conducted only once.	**Ditto.** Remedial efforts continue to be as ineffective; these are grossly targeted and do not offer redesigned content to ensure that the weakest student also benefits.

Knowledgeable versus Learners

Knowledgeable people are expected to keep 'updating' their knowledge in line with the changes in the 'public domain knowledge' (the knowledge accessible to all who search).

On the other hand, 'learners' are expected to use the 'public domain knowledge' to invent 'personal knowledge' that is somewhat 'different' from the public domain knowledge.

We are yet to invent classrooms that 'nurture the natural gift of learning', which sits at the core of the current crisis in education.

Learning is reflexive and natural. A three-year-old child is the most powerful 'learning machine' on Earth. Ironically, the only thing we can do deliberately is to stop learning.

Supporting the learning of gifted and talented children

Another best-kept secret of school education is that it is equally meaningless to both ends of the students in class – gifted and 'slow learners'. Schools don't, and cannot, support gifted children. There are two formal processes for supporting gifted children – enrichment tasks in the grade and acceleration of the grade. Acceleration isn't a reality in 200 years, while enrichment is at best an inconsistent attempt.

Of course, there are difficult social and emotional issues in accelerating/moving a child to a grade beyond her age (schools are very age differentiated). The child may be gifted in only a couple of domains. The complete lack of any variation of acceleration is unbecoming of schools as specialised educational institutions.

Enrichment of content and assessment of gifted students in the course of regular teaching should be easier, but it is as rare in its true spirit as acceleration. Several reasons include the lack of proper definition and assessment of giftedness/talent, lack of curricular resource to support enrichment, lack of capability among teachers, and multi-domain integration of support, etc.

As of now, gifted and talented children can only be nurtured outside the school system. Supporting such children in school can happen only when schools become student centered!

But the most important and disheartening news on educating gifted children is that the number of gifted/talented students in a grade decreases with each advancement of grade. More children 'lose their gift' every academic year because schools cannot support their gift.

No student will lose their gift. In fact, the gift will grow and sharpen only if schools 'teach and act' as if all children are gifted, which they are at pre-school/KG/Grade I levels. Being able to support gifted and talented children is the other focus for school education; besides, parent centricity as a means to student-centricity, and to ensure every child succeeds, without any exception!

A word on what schools must do about 'slow learners' is in order here because it is just a default outcome of the discussion on gifted students. Firstly, schools mint 'slow learners', they are slow in terms of the schools' ways of teaching and evaluating. Secondly, none of them are actually slow learners, but they tend to take their own time for a few deficiencies. Thirdly, schools provide a very harsh environment for 'slow learners'. In many ways, there is little hope for them to come out of this label. The fourth point is that they are branded as 'not interested', or unwilling to improve themselves. But they can't – they are all weak in the language of academics and conceptually lagging behind. Schools are totally clueless about the specifics on both language and concept backlogs (but we know this is a design flaw of schools). Lastly, only parents can help such children!

Memory

   "Working memory is the #1 predictor of learning success."

                              Journal of Experimental Child Psychology

'Working memory' is what we can do with what we know. It is the foundation of learning, and it is the base over which new inputs work. Working memory predicts learning outcomes for 5 to 18-year-olds.

   The important issue with memory is that students with low working memory will continue struggling without training or learning support. A study on high schoolers found that teenagers diagnosed with low working memory two years earlier were still performing very poorly in school compared to their peers.

   'Brain training' is a growing and exciting new area in scientific research. There is much evidence of the brain's plasticity; it changes, shrinks, and grows depending on what we do.

   Let's get the most interesting revelation about memory – it is a process – not an 'object', not a 'physical organ', not a 'static storage entity' like a computer hard disk. The implication is clear – memory represents a series of activities or definite tasks. The 'activities' typically associated with memory are forming, organising, storing, and retrieving information. The dual activities of forming and organising together create the process of 'encoding'. Encoding is a particularly interesting and important process to understand as it holds the key to changing the information from the 'to be stored' to a 'ready for storage' format and increases the efficiency of recall. Information and experiences are not stored in our brain 'as it is' or as they occur but are deconstructed into a different form that is eventually stored.

   For instance, the previous two paragraphs you just read will not be stored in your brain as 'one chunk' of two paragraphs of texts. Instead, this 'chunk' will be broken down into several interconnected pieces of information and stored across multiple inter-linked places in the brain (for example, the hard disk part of the text may be stored in a place in the brain where there is more on computers while the

'activities' part may be stored where there is more on the activities of other processes).

If the information in the two paragraphs create visual imageries for the reader, then the visuals will also get stored somewhere as 'part' of the texts, where similar imageries are stored. For example, if the reading of the two paragraphs creates, for example, the imagery of a telephonic exchange, then the imagery, along with the title 'Memory as a process', may also get stored in the part of the brain that handles images.

Similarly, if the two paragraphs struck an emotional chord within you, a part of the text will get stored at an entirely different place in the brain with similar emotional information. If the content of the two paragraphs made you experience a 'Eureka moment', a link to the two paragraphs will be stored in the part of the memory where other 'Eureka moments' are stored, and the next time you have a similar 'Eureka moment' you will automatically recollect these two paragraphs. Similarly, the retrieval of the two paragraphs would also be in a 'non-chunk' mode – the information in the two paragraphs will be collected from different parts of the brain and then collated into something like the two paragraphs of text, the image of the telephonic exchange and the lovely 'Eureka' feeling.

Interestingly, the more the two paragraphs are 'deconstructed' into small and diverse units in the process of being storage-ready, the better the retrieval will be because there would be as many different threads just waiting to be pulled to trigger the recall of the two paragraphs.

Indeed, memory is an extremely active and complex process of information management in which 'chunks' of information are cut, stored, joined and retrieved. In this process, several other 'unwritten' attributes (such as images, emotional connect) are also assigned to the information being managed.

Memory is a critical mental process without which we would behave exactly like a programmed machine. We would only be capable of simple reflexes, actions, and stereotypical behaviours. Without memory, we cannot modify our behaviour or learn!

Recall, learning is yet another fundamental process – it is the 'capability'/process that enables us to change our behaviour in response to a stimulus. Learning is the 'stimulus' (or 'fodder') for the memory. A learning brain will be a changing brain as a result of changing memory.

In the context of memory, we can also define learning as a process for 'acquiring' or modifying memory. In turn, memory can also be defined as a measure of learning. Evidently, learning and memory are intimately related concepts. There would be no learning without memory because learning acts through memory and changes it to reflect changing behaviour.

Learning can change memory in two ways –
1. Some past information is reencoded and restored
2. Some new information is encoded and stored

Expectedly, learning is a function of a person's skill in 'memory management'. An interesting fact about memory management is that one of the most common explanations for 'poor memory' is a simple failure to retrieve the information from memory. This often occurs when memory is not routinely accessed for thinking, and the person reacts reflexively. The brain is rarely learning or changing, so it decays over time. A 'stimulus-deficit' situation is a potentially degenerative environment for the brain.

Learning and memory are among the most intensively studied areas in the field of neuroscience. Various approaches have been used to understand the mechanisms underlying these processes, yet we know little about them.

The act of recalling information from memory is a function of effective coordination between the two types of memory –
1. Short-term
2. Long-term

Short-term memory is the 'working' or 'processing' memory, much like the RAM in computers. It is the memory that takes information from the long-term memory and processes it in a way that is

required. For example, if one must find the HCF of 34 and 24, the short-term memory will work in the following manner –

1. Seek the meaning of HCF from long-term memory
2. Seek the meaning of prime factorisation from long-term memory
3. Factorise 34 and 24
4. Prime factorise 34 and 24
5. Calculate the HCF of 34 and 24

The short-term memory operates only for a few seconds (that is why it is short-term memory), and each of the aforementioned steps must be done within that limited span. By implication, if some fact from long-term memory cannot be recalled in those seconds, the brain will be 'locked down'.

The action of short-term memory is a function of the speed of recall of the required data from long-term memory and performing calculations. The involvement of short-term memory in 'work' is why it is also called working memory.

The backend memory (long-term memory), on the other hand, handles the recurrent references to it for data. The more you refer to it, the richer it becomes with growing linkages to other 'pieces of information', forming a network. The best networks have as many threads for recall as possible, thereby increasing the speed and accuracy of the recall process for short-term memory.

Long-term memory is dependent on the regimen of its management. The better the discipline with which memory is 'recalled and refreshed', the better the quality of recall, that is, the speed of recalling and the accuracy of the information recalled.

For example, children will have better memory and learn better if they follow a regimen to bolster their long-term memory. Whatever is learnt at school on a particular day must be revisited once on the same day, then within the week, then within the month, finishing with a round of revision at the end of three months and then six months. This has implications for teaching and schools too.

Memory management is complicated for new auditory (specifically conversational, in this case) information because one

cannot really revise to perfection what is just heard once. Reading is far friendlier for memory management than learning by doing, seeing, or hearing.

Researchers have found that assessing the information one has is one of the best ways to improve recall.

A study appearing in the November 2006 issue of the Journal of Experimental Psychology reveals that students, who found time to assess themselves more often, had a better long-term recall of the relevant information, even for information that was not directly covered by the assessments. On the other hand, students, who used the extra time to revise simply, had a significantly lower recall of the relevant information.

The best way to commit information to memory is to keep taking tests. The process of taking tests and reviewing the test feedback has a positive impact on learning. However, thoughtless and repetitive assessments are not helpful either.

To summarise, learning and memory are two sides of the same coin – a good learner will have a faster and well-aligned memory process.

Schools' role

Unfortunately, school education is not 'memory management' friendly. Schools have no method or system in place for frequent recall of the content learnt.

Schools should work to ensure that –
1. All teachers duly revisit every important piece of prior knowledge of every topic/concept.
2. All students 'pre-read' the content before class. It is a fail-safe method of memory management compared to 'post-reading'.
3. All the concepts covered in the syllabus are assessed multiple times during a term.

A lot has to change in schools to make them 'memory friendly'.

Parents' role

Parent's role is significant in creating a routine that would help children improve their memory and ability to recall, thereby also increasing the complexity and speed of their 'problem solving' ability. We already know that the more unique links to specific content in our memory, the better is the recall.

Here is a list of some important methods for multiplying the anchors ('recall threads') to improve memory management –

1. Encourage children to associate pictures with spoken, textual, or visual content. It improves visualisation during recall, forming a strong recall factor.
2. Create stories for your children around topics from their syllabus. This will make them easily recall the content even in subjects like math and science. Real-world connection of all the things that children are supposed to learn is beneficial in boosting the children's performance.
3. Encourage your children to converse. The more they converse around the given topic, the more they can recall. For example, if your children have never discussed 'acceleration' outside the classroom, the concept of acceleration might never be clear in their minds. Conversations around acceleration would clarify the same doubts and create threads that would aid in recalling facts about acceleration. Multiple recalls leave a more 'permanent' memory of any content.
4. Encourage your children to repeatedly practice thus developing better reflex thoughts. When we continuously practice an activity, it gets embedded in our reflexive action.
5. Mnemonics are easy – to remember anchors for recalling lengthy content. Invent creative mnemonics of important ideas, concepts, and rules for your children. For example, 'Please Excuse My Dear Aunt Sally' is a mathematical mnemonic for the order of simplification of multi-operation expressions – parenthesis, exponents, multiplication, division, addition, and subtraction (PEMDAS). Do not forget that mnemonics are just

a tool for enhancing recall, they are of no use if children have not understood the underlying concept.

6. Push your children to read a wide genre of books. Reading is not only a great anchor for memory, but it also helps in connecting links.

7. Encourage your children to express themselves verbally and in writing. They can maintain a daily diary or write letters to anyone in the family. Expression is the key to memory and recall, and writing is perhaps the most structured form of expression.

8. Regular practice of quick response questions and exercises tend to help children. The regular practice helps children discover their own 'shortcuts' to pass through working memory and steadily expands the working memory time for specific knowledge.

It must be emphasised that these recall elements are not mutually exclusive, so the more these elements are associated with a concept, the better the recall.

Parents should prod schools to make teaching processes and resources more memory-friendly and help children work on memory management.

TEACHING AND LEARNING SUBJECTS

As we discussed earlier, some basic pillars of learning are essential for all education. However, different subjects have different characteristics and their own set of challenges and strategies. This section aims to explore math, science, and social sciences education to help parents understand the essence of these subjects and how they can seek better support from their children's school. Language learning has already been addressed in the previous section.

Math

"The essence of mathematics is not to make simple things complicated, but to make complicated things simple."

S Gudder

It is no secret that math is one of the most essential and practical subjects. Professionals in every field need to know and use some amount of Math. However, due to limited understanding of the subject, most children feel intimidated and want to run away from math. This is primarily due to the school's inability to teach math practically. Specifically, four lacunae can be identified in the school's processes relating to math education.

They are as detailed below –

1. Schools try to build new concepts on foundations that do not exist. Your children may be lagging in math and science as they do not have the critical prior knowledge to understand the concepts currently being taught in the class. For example, to understand the concept of HCF in Grade VI, children must be familiar with prime numbers and prime factorisation. Prime numbers and prime factorisation are the prior knowledge necessary for learning HCF. However, prime numbers are taught in Grade IV, and prime factorisation is taught in Grade V. Thus, by the time children start learning the concept of HCF, they have forgotten these prior foundational knowledge. As new knowledge can only be built on the foundations of existing knowledge, or 'prior knowledge', such children are labelled as 'lagging behind'.

2. Schools do not focus on the retention of concepts. This is also necessary to build future knowledge. Concepts are like magnets or anchors. Only when there is 'conceptual clarity' in prior knowledge, will children be able to 'catch and hold on to' new related topics. Due to inadequate linkages to the existing memory contents and lack of conceptual clarity, new knowledge will be too superficial to be stored in the long-term memory.

3. Schools' report cards do not adequately assess children's readiness to progress in terms of prior knowledge, and they are too gross in reporting the progress in the current class. Thus, neither teachers nor parents really know if students are ready to understand the new knowledge of the current class.

4. As ironical as it may sound, excellence in math and science requires a high level of language competency. They are logical and abstract domains of knowledge, requiring a strong language backup to be 'anchored' in long-term memory. Unfortunately, the school education system has a poor track record of supporting language development. Doing more math and science exercises may be a necessity, but they are not enough to excel.

Here are some important suggestions to reinvent the teaching and learning of math –

1. *Use physical objects till Grade II* – All of the mathematics must be seen, felt, and manipulated. The objects used as examples in math education must be a part of the student's daily life and easily accessible at home. School-specific and special manipulatives for math education must be avoided in the early years.

2. *Avoid shortcuts till Grade III* – All of the mathematics should be practised the 'long way' to make patterns apparent and operations visible to the students. For example, multiplication must show all the partial products and then be added.

3. *Use mental maths till Grade III* – Use smaller numbers comfortable with children. Two digits numbers are good enough to understand all the essential properties of operations and number system. It is also a way of reducing the arithmetical complexities in math education. Math examples and exercises must be sharply identified at three levels – conceptual, arithmetical, and conceptual and arithmetical.

4. *Assessment should be mostly verbal till Grade III* – For example, 'You had 7 balloons of which 3 burst. How many balloons are you left with?' Occasional worksheets may be used for assessments.

5. *The content of homework till Grade III* – The major component of the homework should be mental math (that is, no written work to be done at home except the occasional worksheets), reading 'mathematical stories' and writing mathematical solutions in the language of instruction. Parents must be very closely involved in generating exercises based on the concepts in focus in schoolwork.

   New-genre 'Family edition' math books are revolutionising math education at home and the involvement of every parent.

6. *Grade IV to be the bridge between mental and 'method' math* – Methods should not be handed down but must be introduced as products of discovery based on the logic behind mental math. Grade IV and V are the crucial years of math education at school for two reasons – because of the mental to method transition, as well as ensuring that ALL students are equally successful in math and are in love with the subject (with natural, minor variations).

7. *Remedial in the language of academics* – Remedial support must be provided in the academic language. In fact, the most common reason for children not being confident in math is the inability to confidently and correctly understand and articulate situations – real or imaginary – in the language of academics. There is always a specific, one-to-one correspondence between expressions in a language and the equivalent mathematical expression.

8. *Focus on concepts* – All mathematical teaching should be focused on concepts including assessment, reporting, and remedial actions. Math is a rigidly hierarchal subject, and it must be taught in a way that respects the hierarchy by anchoring lessons around individual concepts.

9. *Gradeless syllabus access* – Students must be allowed and encouraged to dig deeper into domains/concept of interest, even if they are beyond the scope of their actual grade syllabus. Math is a 'logical subject' and should not be sliced into rigid gradewise compartments.

10. *Regular practice* – The practice required for math is not significantly greater than that needed for the other subjects. The distinctive nature of the practice gives the impression that math requires much more practice. As emphasised earlier in the book, articulating maths in the usual communicative languages is an essential step in mastering maths. Endless practice in solving (similar) an exercise is part of the problem in math education, not a solution. The math textbook, titled *'Mathematics as a Language',* authored by Sandeep Srivastava, is precisely the kind of textbook we need today to rid math education of its dumbing practices (solving exercises with the same kind of questions which bear no relevance to daily life.)

School math textbooks, pedagogy, and teachers are solely responsible for the poor quality of math education. *'Mathematics as a Language'* is the way forward to ensure that every child succeeds in math.

The unique role of math in school education

The quality of math education holds peerless significance for school education. The much-needed quality revolution in education can begin with a transformative shift in math education.

At the level of students, struggle in math is for sure uncherished part of childhood! For a few, 'Poor in math at school' may turn into a kind of boast for much of their adult life, but no one has fond memories of being poor in math at school.

For the parents, children's struggle in math education is a loss of face (due to their helplessness in helping their children), loss of many career options for children, expensive and necessary supplementary education, and a stressed family environment.

For the school, nothing seems to stem the declining quality of teaching and learning math. It also affects success in science and preparation for higher education. Above all, poor quality math education is the most significant contributor to schools' low sentiments as impactful social institutions.

For society, nation and government, poor math education is the biggest challenge in moving into the 'Fourth Industrial Society.' It

creates the most severe handicap in making every adult productive and to enjoy dignified citizenship. Not surprisingly, democracy is in turmoil globally; people with college/university degrees are almost unemployable and dissatisfied with their present and future. Every aspect of life and work is getting digital, having higher sci-tech components. Even a work of art is about making some pixels more pronounced than others in the digital world.

The success of every child is a non-negotiable obligation of schools, families, and nations. Fortunately, Math is also the only 'subject' that can ensure that the last child, and family, taste success in the first academic year of change. And that success can be objectively measured. By the third academic year, EVERY student in a school will be outstandingly successful in math and love math.

Success in math will trigger an avalanche of confidence and delight for children, parents, teachers, society, governments and set the stage for the genuinely inclusive next revolution.

Excellence in math education is the only first step ahead.

1 + 1 is 11 in Math education

Enabling Parents + Math education = Quality revolution in school education. Indeed, the only feasible and fail-safe way to enable parents is to empower every parent in their children's math education. The series of books *'Mathematics as a Language'* is just that math, no parents will be left behind!

Fortunately, there is more to it – math education (in schools) will not transform unless parents make a more critical contribution and play the primary role. Schools have a secondary role in rewriting math education just as they have a secondary role in ensuring high literary competence in the language of academics, and competitive levels in art, music, theatre, sports, etc.

Math–empowered parent is the (human) developmental salvation.

Dear parents, get going. There would be no exception, get cracking on 'mathematics as a language.' And take our word for now – your life will change more than your children's, whatever extraordinary happens to their lives.

Knowledge called science

> *"Science is built up of facts as a house is of stones, but a collection of facts is no more a science than a pile of stones is a house."*
>
> *Henri Poincare*

Everything we experience or see in our life is science. In this context, we talk about having a scientific temperament as a way of life – the ability to see the science in 'everything' and be able to explain the action (or the lack of it) in all things around us.

Science involves exploration, experimentation, and explanation of the living and non-living things and their visible and invisible interactions. Learning science is about being able to discover and apply scientific rules and principles in our daily lives.

A few examples of how science developed through the ages will help explain the importance of experiences and experiments –

- Italian polymath *Galileo Galilei* (1564–1642) asserted that the Earth is not at the centre of the universe. This was his way to explain why some planets seem to take a reverse direction in their revolution. He came up with the explanation for this observation that it could happen only if the Earth revolved around the sun and passed those planets during its orbit. He changed our world forever.
- In 1971, American astronaut *David Scott,* standing on the moon, dropped a hammer and a feather from the same height and found that both reached the surface of the moon at the same time. The experiment was a dramatic demonstration of the predictions made by Galileo, three centuries earlier.
- *Dr William Harvey (1578–1657)*, the founding father of medicine, realised that blood flows continuously through our body when he connected heartbeats to the pulse in the wrists. He was greatly ridiculed for connecting two simple observations through something so big! Yet, blood does circulate in our veins, and this was a revolutionary discovery.

Fortunately, during the course of our evolution, we have been able to explain and document a lot about the living and the non-living world that we are a part of. We can easily access the 'collective mind and understanding' of the world if we can read all that is written in scientific literature. Indeed, reading is the best way to get initiated into science and then fine-tune the understanding with conversations, experiments, and assessments. Interestingly, by reading scientific literature, we can access the knowledge that already exists and the questions that remain unanswered. There cannot be a better way to learn science.

Decreasing interest in science education by students worldwide is a significant hurdle that needs to be overcome. In his 2009 address, President Obama had identified this as a global issue,

> "*It is vital that we increase the interest of students in science. In addition, certain groups are underrepresented in science careers: girls, minorities and people from lower socio-economic groups. We need to take steps to explore the reasons for such inequality and move to remove barriers to participation.*'

Well-documented studies report the decline in interest in science and science careers in primary and secondary schools. One of the biggest reasons for this is that many children struggle in science despite putting in effort. Most school processes are not optimal for teaching science. Even the strictest adherence to the processes of schools will not yield the best results for the children if they do not have the support of their parents.

Overhype of experiential learning

One of the most popular beliefs about teaching science is the effectiveness of 'learning by doing'. While it is true that 'learning by doing' is one of the most effective ways to learn, there are other pre and post requisites for this methodology to work. There is interesting Indian research on the role of 'doing' in learning science. The experiment rightly brought out the unique strengths and weaknesses of learning by doing.

Hoshangabad Science Teaching Programme (HSTP) introduced the 'learning by discovery' approach to science education in village schools in place of the textbook-centric 'learning by rote' approach. It was a multi-lateral experiment with the best of credentials in terms of the organisations participating. The experiment was conducted for over two decades across Grades VI to VIII of the government schools in the Hoshangabad district of Madhya Pradesh in India.

Students were given a special set of books and had simple yet extensive experimental aides at their disposal. Grade X board exam results were used as a proxy for measuring the learning gains of the students. However, even after years of experiment, the performance of the students in the Hoshangabad district, specifically in science, was not among the top 10 districts of the state. It was, in fact, lower than its neighbouring districts. Learning by doing did not seem to be working well.

It was also found that the literacy growth rate in 2001 (after over 2 decades of HSTP) of the districts bordering Hoshangabad was well over 20%, whereas the growth rate in Hoshangabad was under 20%.

Another study explored the effectiveness of practical work in English (medium) secondary schools by analysing a sample of 25 'typical' science lessons involving practical work.

It was found that the teachers' focus in these lessons was predominantly on developing the substantive scientific information of students rather than developing their understanding of scientific enquiry procedures. Practical work was generally effective in getting students to do the intended work with physical objects but much less effective in getting them to use the intended scientific ideas to guide their actions and reflect upon the data they collected.

The authors believe that learning by doing will be ineffective without the larger conceptual frameworks, conversations and reading. Learning by doing is a good supplementary educational tool, just as learning by seeing and listening are, but reading is the most potent learning tool. Broadly, 'activity-based learning' often ends up being 'hands-on, minds off'; and a way of getting away from other kinds of classwork, ignores extensive reading and

conversations around the activities (before and after the activities).

The quality of 'learning by doing' is critically dependent on the following –

1. Conceiving the best possible design for doing practical activities.
2. Designing practical activities with clearly defined expectations.
3. Helping students hypothesise about the outcomes of practical activities based on their prior knowledge through pre-activity discussions.
4. Helping students link observations and experiences to hypotheses, through extensive post-activity discussions.
5. A general atmosphere of scientific enquiry in the community where children come from.

Science education needs a complete overhaul from all corners – curriculum design, books, assessments, reporting, remedial, classroom transactions, homework, and appreciating the role of language. In a way, reforming science education is the most challenging of all. All science teachers and parents must 'experience' every moment and naturally enjoy the process of 'logicalisation' of these experiences (and figuring out anomalies that do not fit into the logicalisation).

Science and math education are linked by the same thread – the explicitness and precision of experiences and the joy of knowing.

Everything we experience or see in our life is science. It is in this context that we talk about scientific temperament as a way of life – the ability to see science in 'everything' and being able to explain the action or the lack of it in all things around us.

Biology

> *"Biology is the study of the complex things in the Universe. Physics is the study of the simple ones."*
>
> *Richard Dawkins*

Biology is as much a part of our surroundings as physics. Biology can be easily demonstrated in every garden, field, kitchen, bedroom, or even while looking into a mirror. It is a captivating subject that needs to be 'taught' to children so that they can start appreciating the magical properties and prowess of the organic processes in and around us.

Interestingly, in kindergarten and lower classes, children are easily excited by seeing a seed come to life and germinate, caterpillars crawling and eating leaves, pets, ladybugs, butterflies – everything fascinates them. A visit to a park makes biologists out of children. Plants, flowers, seedpods, seeds, leaves, trees, shrubs – everything needs to be seen, touched, smelled, and experienced in as many dimensions as possible. They soak in everything using all their senses. Life enchants them so much that even inanimate objects come to live in their pretend plays.

As children get to middle school, they lose interest in learning biology with the natural curiosity and enthusiasm that filled them to the brim as kindergarteners. Somewhere in the higher classes, learning biology becomes all about memorisation and scores. Most children switch off from biology when they are not guided to see any real-life contexts for what they are learning.

We need to change the context of biology to address concerns of personal and community survival in the times when issues of global warming have to be addressed, unknown diseases need to be identified and prevented, the human aspiration to live a long and healthy life has to be dealt with, and cure for dreadful diseases such as cancer has to be found.

One of the biggest errors while teaching biology is focusing on one subject in such detail that the larger picture is lost. For example, when teaching the classification of living things, the takeaway for

students is lots of names to be learnt rather than the big picture where concepts come together like pieces of a jigsaw puzzle to explain classification. When classification is taught while linking it to evolution, anatomy, physiology, morphology, genetics, etc., the diversity can be appreciated, and children get to understand the larger picture logically.

Often teachers and students alike focus so highly on individual pieces of information crammed into the syllabus to get them through exams that they forget that live scientific demonstrations of the course material are constantly going on in their surroundings.

Specifically, learning biology can be made more effective and interesting by using some of the following strategies –

1. Start from the general and move to the specific. While studying any living organism, proceed outward-in. Start with its surrounding, then move on to its parts, the functions of its parts, what the parts are made of, how the building blocks of the parts support their functions, and then end with how everything adds up and makes the organism suitable for its surroundings. While studying the non-living surroundings, move from simple to complex ideas – water to rain to water-cycle to floods and droughts to pollution, etc.

2. Discuss things that are near/visible before talking about things that are far/invisible.

3. Study the interaction between living things and non-living surroundings. This includes the importance of the living things for the non-living things, as well as the importance of non-living things for living things. The organisms that can adapt to changes in the environment and make the best use of available resources need to be highlighted.

4. Living samples or life-like models of the subject being studied make biology more interesting. Put the knowledge of biology to the test in children's daily activities. For instance, after a round of sports or a run, discuss with them the processes that are happening in the body at that particular time – what is making the heart beat faster,

how muscles work to create movement, why muscles ache, etc. – or on seeing a bee on a flower, discuss with them what the bee is doing and how such a small creature is essential for life on earth.

5. For a scientific approach to the subject, students should be encouraged to hypothesise to explain biological processes and set up simple experiments to prove their hypothesis, which mimics the process.

6. Comparative studies of different organisms help children see diversity, evolutionary adaptations, and survival of the fittest in action.

7. While explaining a biological process, first lay down its beginning and end, and then deduce with the children the steps in between through logical thinking.

8. Encourage children to read science magazines and books (there are many 'popular science' titles available that cover various aspects of biology), followed by a specific exploration of the rich content on the Internet. This will present biology as a very personally important and interesting area of learning.

9. Children often find the terms used in biology complicated to spell, which can be off-putting. Now, imagine having to memorise pages after pages of strange names that are beyond your comprehension! Anyone would end up wanting to avoid biology. The solution is fairly straightforward – break down the terms. Most terms in biology have their roots in Latin and have a prefix and/or suffix. Once the prefixes, suffixes, and/ or the Latin root that constitute the term have been identified and isolated, children will be able to appreciate the meaning of the name. This will help them remember the terms and their spellings. For example, 'photosynthesis' is made up of two words – 'photo' and 'synthesis', where photo = 'light' and synthesis = 'create', which means that photosynthesis = 'the process that creates in the presence of light'.

10. Last but not the least, current affairs are one of the most potent tools in the parents' and teachers' arsenal. Pollution, diseases,

stress, adulteration, war, etc., are all excellent topical issues for exploring biology.

For example, how many of us can say that they now know more about biology than they did before the pandemic started? Taking this a step further, let us explore how we can link the news on the COVID-19 outbreak to introduce and discuss an important and interesting, aspect of biology with children. Classroom activities could be designed to help children develop self-directed learning skills, information retrieval, analytical behaviour and critical thinking, etc. The activity should eventually suggest the causes and possible treatments. Along with learning about the biology that will define humanity's future, students will develop the skills for disciplined analysis, reflective thinking, problem-solving, and asking sagacious questions, a key skill for scientists and citizens seeking to be more aware.

With the case study of COVID-19, the following knowledge will eventually emerge –

1. Different types of diseases – infectious and non-infectious
2. The causative organism of diseases
3. The causative organism of COVID-19 in particular
4. The characteristics of the COVID-19-causing organism
5. How do viruses multiply?
6. How do diseases spread?
7. How does COVID-19 spread?
8. Signs and symptoms of COVID-19
9. Preventing the spread of COVID-19
10. What are the possible cures for the disease?

The COVID-19 case study readily demonstrates that contemporary human challenges are gold mines of opportunities to make biology interesting. The following is a list of a set of challenges currently faced by us that could be used for making biology attractive –
- Human pathologies
- Natural disasters
- Genetically modified foods
- Sports medicine
- Drug abuse
- Sexually transmitted infections
- Climate and environmental issues
- Alternate medicine and health fraud
- Immunity and vaccination

Physics and Chemistry

> *"No inanimate object is ever fully determined by the laws of physics and chemistry."*
>
> *Michael Polanyi*

The quote is a very sobering commentary on the all-powerful science! Physics and chemistry is the knowledge that we have developed to explain the world best, as we know it now.

Human mind and physical sciences

As we had mentioned earlier, language plays a critical role in exploring science and more specifically physics, even though this connection is not intuitive or apparent. Entirely real and practical subjects such as physics and chemistry are also quite language driven. It may suffice to share that among the most eminent physicists of all time, the lion's share goes to theoretical physicists and not experimental physicists. One would think it to be other way round in a subject that is all about explaining observations, experiences and experiments.

Archimedes (287–212 BCE), *Galileo Galilei* (1564–1642), *Isaac Newton* (1642–1727), *Michael Faraday* (1791–1867), *Albert Einstein* (1879–1955), and *Richard Feynman* (1918–1988) were all essentially theoretical physicists. Richard Feynman is supposed to have coined the phrase "thought experiments" to explain how he experimented as a theoretical physicist.

The story of theoretical chemistry and chemists is quite similar – thought experiments and mathematics work in chemistry too. The following is what Wikipedia has to say on theoretical chemistry –

"It predicts what happens when atoms combine to form molecules. It also predicts chemical properties (characteristics) of molecules. An important part of theoretical chemistry is quantum chemistry. It uses mathematics and computers. Theoretical chemistry unites principles and concepts common to all branches of chemistry. Within the framework of theoretical chemistry, there is a systematization of chemical laws, principles and rules, their refinement and detailing, the construction of a hierarchy."

It may be interesting to know that the 2013 Nobel Prize in chemistry was awarded to three theoretical chemists – Martin Karplus, Michael Levitt, and Arieh Warshel.

Every human mind is capable of seeing the universe. Step up!

Math versus science

Both physics and chemistry also require a very sound knowledge of math. In fact, many mathematical concepts, including whole branches of math, have been invented by physicists. For example, Isaac Newton developed calculus to explain the continuously changing motion. Einstein derived relativity theories mathematically; he was an armchair physicist.

Many children face challenges in learning the concepts of speed in Grade VI because they cannot confidently visualise conversion of units, such as meters/second to kilometers/hour (a mathematical prowess).

Advances in mathematics have mostly been the work of mathematicians trying to fit new logical thoughts into the entire body of mathematics. These advances were not made for developing useful applications of mathematics. The advancement of science did push mathematics to newer directions and helped in the advancement of mathematics. For example, physics and engineering invested a lot of attention in the development of differential equations. Over time, differential equations became the primary mathematical foundation of applied science.

The interface of science and math can be captured in knowing that science is about "logical reasoning based on observations, experiences, and experiments", and math is about "logical reasoning backed by logic" (mathematics is not derived out of anything real, though it is a very real domain of knowledge – it is the language of physics). And what is logic? Our simplest definition is what was offered by Euler, paraphrased as "Logic is the confidence one has in saying what one is saying."

Galileo has been called the father of observational astronomy, the father of modern physics, and even the father of science. He is also credited with the "mathematisation" of science. He wrote that the Book of Nature is "written in mathematical language, and its characters are triangles, circles and other geometric figures, without which it is impossible to humanly understand a word. Without these, one is wandering in a dark labyrinth."

If the thought of clubbing physics and chemistry into one section rankles you, let us just remind ourselves that Marie Curie received Nobel Prizes in both chemistry and physics. The two studies matter with significant overlap but take different views of the same observation and experience.

Social Sciences

"The notion that every well-educated person would have a mastery of at least the basic elements of the humanities, sciences and social sciences is a far cry from the specialized education that most students today receive"

Joseph Stiglitz

The extra attention received by 'sciences' (science and maths) in our schools, homes, tuitions, coaching centres, and Olympiads is educationally unsound. It can be called schooling, but not education. Indeed, the side-lining of humanities and social sciences in our school education system is the single largest cause of the crisis in value education and life skills.

Social sciences allow students to develop the attitude, skill and knowledge to become engaged, active, informed, and responsible citizens. Recognition and respect for individual and collective identity are essential in a pluralistic and democratic society. Social sciences help students develop their sense of self and community, encouraging them to affirm their place as citizens in an inclusive, democratic society.

As parents, you need to save social sciences from obscurity. All major personal, community, social, cultural, and national issues share an umbilical cord with social science education. Issues like cleanliness, bullying, road rage, and defacing historical monuments are all an outcome of inadequate attention to social science as a subject.

The teaching and learning of social sciences in schools may be the weakest link in school education since the global expansion of the public school system nearly two centuries ago. More interestingly, history, geography, and civics create the most important impressions of national identity. Rather than being used to empower students, these subjects are often designed intentionally in specific ways to shape the thinking of children.

The three subjects are no less than math and science and are critical inputs for personal, community, and national development. To top it, in a world that is fast shrinking into a village, social sciences are gravitating towards the centre stage of economics. A 'cohesive global village' calls for inventive approaches to teaching and learning history, polity, and geography.

To the point, the following changes in social science education would better serve the children and the nation –

1. These subjects must be taught from 'near to far', as they are highly contextual. In India, history, for instance, must start from Class VI with 'modern India' rather than 'ancient India'. Similarly, World-War-II could be taught before teaching World-War-I. Once 'a sense of history' is instilled, context could be extended back.

2. In terms of interest among students, the 'make or break years' for social sciences are classes VI and VII. It is important to make social science relevant in these years. Even if the ill-famed dates and names are important for exams, there is the freedom to teach and test very differently till class VIII, to get all students interested in social sciences.

3. In civics, discussions should start about issues closer to students. For instance, one may start with using and abusing social media and the Internet and then connect it to civic issues. Elections are now greatly influenced by social media and messaging. Similarly, social order, community services, community opinions etc., are all easily coordinated and influenced using the Internet.

4. Concepts are as important in social sciences as in math or science. They must also be taught through a series of interlinked concepts. For instance, the French Revolution, the American Revolution, and the Russian Revolution are essentially interlinked concepts, and this will provide unique dimensions of these events to us all.

5. Social sciences must be based upon extensive reading, much like literature. Teachers and students must use additional resources like books beyond textbooks, blogs, news reports, special reports, reports of specialised agencies, YouTube videos.

6. Social sciences, especially history and civics, must be taught more liberally with space for individual interpretations and promoting the idea of qualitative research. There are no right answers or explanations, and understanding any context requires exposure to contradicting points of view and multiple sources.

7. Mind maps must also be prepared in social sciences to help children see the big picture and the presence of 'fundamental realities' in social sciences. If events, people, and places are redefined as bundles of 'contextual, behavioural or environmental entities', mind maps will be easier to present. It may mean over-generalisation, but that still helps young minds.

8. Social sciences cannot be taught only in classrooms. Schools must allow more people to interact with students and periodically take them out of the school premises. For instance, the best way to create awareness about cleanliness is to let the students adopt a community space around the school and keep it clean for a period.

9. In history, the assessment system, till class VIII, must be significantly changed to encourage 'thinking and open-ended' answers. Civics assessments could entirely be case-based and around relevant real events and issues to develop a greater sense of community living. Geography assessments should be more about 'concepts and their interactions' rather than facts and figures; for instance, the linkage between rainfall and roofing in an area, or the linkage between deforestation and floods.

10. Two, six-month personal projects of study by every student must become an integral part of teaching resources in social sciences. Every topic/period in social sciences must be connected with at least one personal project. The personal projects should offer the widest option of format, action, and content and must be decided with the help of the students' family.

Of course, far more innovation is needed in social science education, and the aforementioned are just pointers to the kind of change desired.

Harnessing Assessments

One of the most tinkered, sensitive and ineffective educational processes is the assessment of children, and its meaning within schools, educational bureaucracy and governments, as well as among parents. It is the only process in education that gets together all stakeholders in agreement that assessment is not working.

But why do we care so much about assessments? Why do all, including students, feel that it is not working fine? Assessment is a unique artefact of teaching and learning – it is the critical pre, as well as, post-event process to measure the 'value added' by teaching, and/or learning. Indeed, teaching and learning are incomplete without assessment.

Now, let us move to a very familiar space – almost all parents tend to get shocked at their children's performance at school term exams. Most are shocked by the less-than-expected performance and some by the better-than-expected performance. The biggest part of the shock is majorly in the surprise, and often teachers are as surprised as students, their peers, and their parents. No one is confident of a certain achievement in a given assessment.

Can assessments be made to be more predictable in outcomes? Are assessments truly 'beyond control'? The conundrum around assessment strongly reflects the entire ecosystem of education (of which assessment is a part).

Here is a review of that ecosystem –
1. Assessment affects students' grades, placement, curriculum progress, enrichment, and instructional needs.
2. Summative assessments help you know how much of the tested content your child knows or understands (such as semester exams).
3. Formative assessment (such as 'weekly tests', oral tests, assignments) done after every lesson gives a comparative continuum on how your child is progressing over a period of time.

4. If poor performance is ignored in formative assessment, the learning deficiencies will increase by dozens and cumulatively affect annual academic achievement performance. Take teachers' help to study the answers that your child didn't score well for and to help you understand the learning gaps.

5. Don't expect to get the whole picture of your child's learning from one summative, as it focuses only on a part of the entire curriculum.

6. You can ask for class average performance in an assessment. This enables you to understand whether the teaching has been effective.

7. Ask for sample answers and compare how your child answers. If answers are comparable and you are convinced that your child deserved more marks, ask for a meeting with the teacher along with your child. A good discussion may help the teacher to moderate his/her judgement and return to relook. On the other hand, you may understand the teacher's perspective and could then help your child to work on learning to bridge the gap or work on the writing approach.

8. In traditional lesson planning, teachers begin by looking at what needs to be taught. They plan lessons, choose activities and teach the material and then give the assessment. In most schools, students are taught for exams – covering the syllabus is more important than ensuring understanding. Guard against this. If your child does not understand what is going on in the class, the teaching does not address the child's learning abilities. Like some learn faster by seeing, listening, or doing.

9. Encourage your child to get out of the shell of being a passive listener.

In our belief, the driver for good teaching and for ensuring quality learning should also emanate from innovative exercises and exam papers. Just imagine how teaching would change if the weightage for recall questions is just 10%.

For the entire assessment process to change, teachers should:
- know the curriculum standards;
- create formative and summative (in-class) assessments, review and analyse assessments to meet the needs of all students;
- design lessons that integrate these standards and assessments.

Good assessment and quality feedback will help you to support your child's education!

Here are the 10 important dimensions of assessments the school must share with you (otherwise, specifically demand these details) –
- If relevant, a list of all kinds of assessments for children, with their stated purpose and weightages in the annual evaluation.
- Specific guidelines for teachers on the design of assessment tools and evaluation for each kind of assessment for children.
- The achievement goal for every student on each of the assessments, as planned by the teachers at the beginning of an academic year (annual goal-setting for each student).
- The process and outcomes of the continuous review of each student's achievements in the goals set for them.
- The process of remedial inputs and how they are different from regular inputs and their effectiveness. Additionally, the process of remediation and how these are different and effective should also be sought.
- The policy and process of assessing talented and gifted students, as well as the policy and process of enrichment (or acceleration) and assessment of gifted and talented students in everyday teaching.
- The process and role of HODs and Principal/HM in reviewing assessment outcomes and continuous improvement.
- The explicit role of parents in supporting each kind of assessment, in goal-setting, and remedial and remediation plans for their children.
- The process and role of students in improving self-awareness of learning habits in and out of classrooms, based on assessment outcomes.

- The format, goal-setting process, and evidence required in the annual assessment of teachers.

There is so much more to the quality of assessment in schools that it is a subject matter of a book in itself. Use the knowledge obtained through the above discussion to push for 'Learner-centered' assessment at school. Yes, this is beyond the best of what schools currently talk about.

Just as schools have to envision teachers 'teaching children' (not 'teaching subjects'), assessments have to focus on how each student demonstrates the concepts he/she is asked to explain, not on what he/she is supposed to know.

For example, the math teachers should stop thinking of themselves as 'teaching math to students' and think of themselves as 'teaching children with a focus on mathematical observations, experiences, experiments, reasoning and mathematical solutions to given problems/situations'. Ensure that all the teachers in the school teach children, students should be the teacher's subject, the domain of knowledge is just a coloured lens for the teachers and students, which changes with every teacher.

Similarly, in assessment, the math teachers must assess how every student understands and demonstrates the concepts learnt together. Ideally, a few (2–5, depending on the grade level) concepts may be assessed at a time. This will save time in assessing all the students and increase confidence in assessment outcomes. For example, the addition of like things and addition of unlike things (and addition of like and unlike things, if appropriate) may be assessed together while 'teaching' addition to Grade I.

We want to re-emphasise that while good teaching is the goal, good assessment is a key means to define the content for good teaching.

OVERALL DEVELOPMENT

"I would teach children music, physics, and philosophy; but most importantly music, for the patterns in music and all the arts are the keys to learning"

Plato

While we are aware of how overall development is at the centre of all educational experiences and planning, we rarely appreciate how important extra-curricular education is as a catalyst for overall educational success.

Let us explore how learning music, dance, and sports helps boost the overall quality of education.

Life skills

Where did we parents pick up life skills? At home, from the community, and at school – in that order. There is no reason for our children to learn life skills differently. Schools cannot teach the life skills meant to be taught at home and by the community.

The life skills we learnt while growing up in the 1950s, '60s, '70s '80s and '90s could be divided into three broad categories – personal, social, and technological.

These life skills have not changed fundamentally in the years since, but their relevance and context may certainly have changed with the times. For example, while being respectful to the people in our surroundings was always a virtue, the context has expanded to the entire world, with special attention being paid to the minority populations (of all kinds), migrants, and gender bias. Essence is the same, and it's more nuanced now.

Evidently, the way we impart life skills to our children needs to evolve with the changing times. For this, we need model adults – adults who know the entire context of a life skill in its historical essence, in addition to the new nuances in the expression and its usage in today's day and age! The crisis is this – where are the adults who can navigate both the worlds with equal aplomb; for example, we are as 'indiscreet' about using social media as our children. This lack of role models cannot be remedied by a curriculum or periodic training sessions on life skills in school.

Children are unaware of the subtle emergent 'differences' as they have no other context to compare them with. Parents need to be extensively 'educated' on these nuances because we need to educate our children about the 'contemporary form' of the 'eternal' life skills by seamlessly merging the 'traditional essence' with the new nuances.

Furthermore, the personalization and globalization heralded by the Internet have introduced many shades to all life skills. This demands an urgent focus on reskilling parents as well as children on life skills on a mass scale. And the challenge is evident – who

mentors whom, when everyone needs mentoring. The development of contemporary life skills at this scale requires a revolutionary breakthrough. So far, we only know that every one of us would have to take charge of personal reskilling. We are working to discover the motivational axis to propel this personal regeneration.

To summarise, it is not our children who need to be trained on life skills, but it is us – the adults, mainly parents, and teachers, who need it, to serve as contemporary role models. But we don't know how to begin!

20th century life skills   **21st century life skills**

Adult

- Adults were role model
- Longer technological lifecycle
- Local community

- Personal skillset
- Literacy & Numeracy
- Value system
- Civic duties
- Technologies of Time
- Health

Adult

- Adults are no more role model
- Shorter technological lifecycle
- Global community
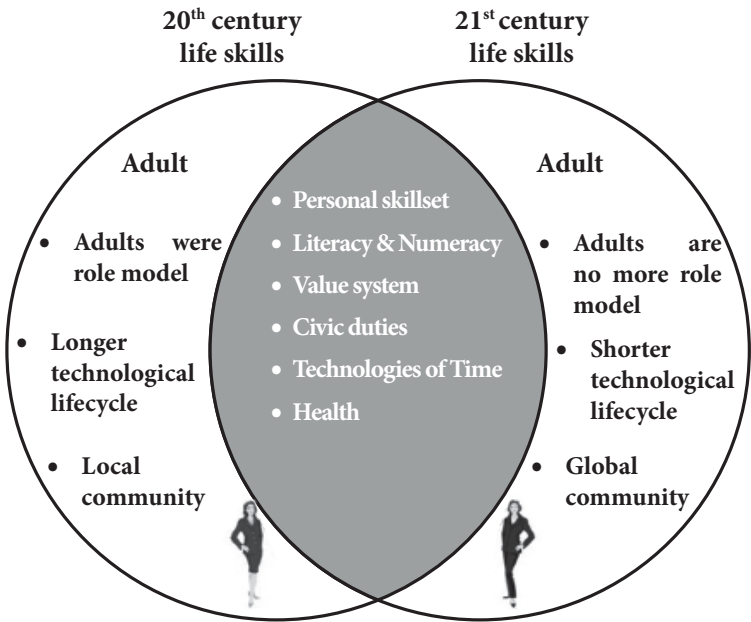
Values

> *"When your values are clear to you, making decisions becomes easier."*

> *Roy E. Disney*

There is nothing more pernicious than 'endless education' (educating without a clear end goal). Education, overly preoccupied with the foreground of facts and skills, neglects the backdrop of purposes and values.

In recent years, the growing number of educators, governments, and communities demanding the teaching of values in public schools has led to the implementation of value education.

We need to plant value education in schools very thoughtfully and know that teaching values in schools is necessary, but not enough. In many parts of the world, 'moral education' has been part of the curriculum since the founding of schools, but it was always concurrent with that of families and communities.

However, without getting into further semantics, value education is, by definition, broader than moral education. It is being curricularised so that schools emerge as the primary context for value education.

It must go on record that schools have not pushed back the demand for including value education as a curricular subject, despite being overwhelmed and far too stretched delivering scholastic, co-scholastic, and socio-emotional education. There is also a growing feeling that schools may have overestimated their ability to impart it right.

The role of schools as the reinforcer of commonly shared values is no longer relevant or possible in our increasingly heterogeneous society. Values systems now vary at the familial level in a school because urbanisation has created mixed and divided communities. Schools are increasingly in conflict with parents on what demeanours are socially acceptable and what are deemed irreverent. Furthermore, the teachers themselves may have different value profiles compared

to the community of the school, further confounding students and schools.

Let us go back a few decades in social history when a common set of values were supposedly well entrenched to expose the underlying fundamentals of value enculturation.

A closer dissection of the value ecosystem, up to a few decades in the past, reveals the following facts –

1. Children grew up in an environment where the adults were the personification of values.
2. All the children in a community shared almost the same set of values.
3. The compliance ran deep – people did not even dream of alternate values.
4. Family and kinship were the prime drivers of values.
5. There were severe sanctions against violations.

However, there was a subtle yet far more compelling and 'mind-numbing' reason for values' conformity in a community at the local, regional and national level. It was the intellectual rigour that backed values; the elaborate 'intellectual regime' of religion and social mores fuelled the long and winding trek to values' supremacy.

The highest level of intellect, 'stories', reasoning, and imagery behind the raison d'etre and compliance of espoused values ensured uncontested allegiance to values. Expectedly, the generic decline in the intellectual rigour in education, due to poor language and mathematical achievement of students and the increasingly weaker academic background of those teaching, implies that the intellectual rigour in value education would be on a weaker foundation. Value education in schools cannot be forceful enough.

Furthermore, the emergence of 'soft parenting', nuclear and single-parent family structure, and the absence of model adults in the form of parents and teachers have exposed children to a diverse and diverging set of values that only get compounded by the ubiquity of the highly-diverse digital media. This leads children to form varied values and attitudes, influenced by their heterogeneously-

valued peers rather than their more homogenously-valued family members. Sooner than later, parents give up on whatever little value education they were striving for.

We need a new 'religion-like canvas' that involves everyone to provide the foundation of new-age values and extensive conversations around them. Protecting the environment, including flora and fauna, living in a global village with dignity, equality, and opportunities of education and health, a better quality of life for everyone, 24×7 intelligent digital imprints, and increasingly rapid innovations in the physical and social artefacts around us duly encapsulate the 'new religion' needed to support value education.

On the whole, our homes still remain the primary place for the inculcation of values. Traditionally, schools were part reinforcers of the homogenous values shared by the students. However, since schools currently represent diverse backgrounds and social values, schools cannot bolster and support value education. There aren't many shared values for schools to play a part in reinforcing.

However, they can be mandated so that they can play a significant role in value education in short to medium-term at the very least. One way in which homes and schools can effectively complement one another is to vertically split the value education domain into traditional and 'aspirational' values. The traditional values could continue to be 'role modelled' and nurtured by parents, and the 'aspirational values' are more appropriate for and congruent with school education. By definition, families and communities will be slower in espousing emergent and aspirational values.

Let's discuss the context and state of an aspirational value.

One example of aspirational values that needs rethinking and conscious modification is the unprecedented shift in gender roles and relationships. Schools are already playing a key role in this value transformation.

One of the gravest inequalities in history is gender based. It is only natural that the 21st century should put the last nail in the coffin of gender inequality. In the last few decades, remarkable progress has been made in reducing the gender gap in education

and jobs. This has led to the emergence of new gender roles that affect relationships, statuses, marriages, and families worldwide.

Since women are much more likely to have jobs today than 50 years ago, they are taking control of their lives, financially and emotionally.

Now a worker's income cannot support a middle-class family, making double income a necessity. Most families need the wife's earnings to supplement the family income.

A report titled 'Relationships – Sad Dads!', published in the Times of India on 7th December 2014, states that men are also susceptible to post-partum depression. First-time fathers are now suffering from stress, similar to mothers. Parenting is undergoing mutative changes!

Obviously, both boys and girls must be sensitised for cross-gender roles and responsibilities such as making one's bed, tidying one's room, cooking, washing clothes and utensils, and managing one's finances. The changing gender roles are inadequately appreciated in most societies and will be the biggest cause of social and personal stress in the years to come! Schools are the best-suited social organ to power this change.

Let us carve out a role of schools in value education that is feasible for schools to realise and contemporary enough for communities to galvanise change in due time. To be right, 'maintaining status quo and averting instability' is one role of communities.

A few questions have been left answered – Who gives the mandate and specifics to school(s) for the aspirational values it must promote? Is it the parent community, the local community, or the appropriate government(s)? If all have to be involved, how must the three negotiate?

Music

> *"Without music, life would be a mistake."*
>
> *Friedrich Nietzsche*

Music may actually be the most nourishing food for the ears; the ability to appreciate it is best enhanced by training the ears with good music. Learning music not only involves training one's vocal chords or playing an instrument, but also active listening, imitating, improvising, composing, comparing, refining, interpreting, recording, annotating, practising, rehearsing, presenting and performing.

Listening to music is an extremely rich experience in the sense that it requires seamless integration of listening, enjoying, reflecting, analysing, appreciating, and evaluating.

Music, like science, is exact and specific. It needs the knowledge of acoustics, pitch, timbre, intensity, volume changes, melody, and harmony all at once, supported by a heightened sense of rhythm and time. Music involves mathematics; rhythm is based on division and subdivisions of time, which must be worked out instantaneously and spontaneously. It is a beautiful art that evokes and recreates emotions.

Here are the various benefits of learning music –

1. *Motor skill development* – Swaying and dancing to musical beats is beneficial for motor skill development, hand-eye coordination, and strengthening of muscles.

2. *Language development* – Music, like any other language, has semantics with phrases and sentences, commas and periods, questions and exclamations. Young children can recognise words, sounds, rhythms, tones, and pitches long before talking, singing, or dancing. Clapping hands, stamping feet, and using percussion instruments to maintain beat in music help develop important pre-reading skills. Children who play an instrument and sing are better at speaking, writing, and modulating speech. They outperform other children when it comes to using

information resources, reading, and responding. They can memorize foreign words more easily and are quicker at learning the rules and exceptions of grammar. Many famous writers were also lovers of music and spoke more than one foreign language.

3. *Social competence* – As music education benefits language development from an early age, it also strengthens the capacity to be verbally competent – and we can all attest to the fact that language competence is at the root of social competence.

4. *Cognitive development* – Research shows that an early and sustained educational experience in music impacts and improves learning capabilities and supports scholastic success. Music education is not only an outlet for self-expression and a source of enjoyment but is also linked to improvements in cognitive functions like awareness, perception, reasoning, and judgment.

5. *Auditory discrimination* – Through music, children learn to discern tempos, dynamics, and melodies. Listening attentively for loud and soft, up and down, fast and slow, encourages auditory development in the brain. Songs encourage speech and auditory discrimination. Studies show that children trained to play a musical instrument for three years had better auditory discrimination abilities and fine motor skills than those who weren't.

6. *Complex thinking ability* – Students find it easier to handle complex thinking processes if they have studied music because parts of the brain that are used in processing math are strengthened through music practice. Students involved in instrumental music do better in algebra. Music affects the ability to see part-whole relationships (spatial-temporal reasoning). K Radhakrishnan, chairman of Indian Space Research Organization (ISRO) and one of the brains behind Mangalyaan, is an accomplished vocalist (Carnatic music) and Kathakali (classical dance form of Kerala) artist. Dr. A. P. J. Abdul Kalam, the beloved nuclear scientist who was also the 11th President of India and India's 'Missile Man', was a keen musician and played the 'veena' (an ancient string instrument).

7. *Abstract thinking* – Music stimulates the brain and encourages abstract thinking. Abstract reasoning is integral to a student's ability to apply knowledge and visualize solutions. Studies have shown that young children who take keyboard lessons have greater abstract reasoning abilities than their untrained peers, and these abilities only improve over time with continued training.

8. *Memory skill* – The usage of patterns, both in melody and in rhythm, helps enhance children's memory skills. Children learn their 'ABC' easily with the help of the alphabet songs. Music not only helps in easy memorization but also in a quick recall. This is because musicians are found to have superior working memory compared to non-musicians. Learning music improves the recall and retention of verbal information.

9. *Creativity* – Music education develops creative capacities. It sharpens attentiveness skills, strengthens perseverance, heightens overall creativity, supports better study habits, and bolsters self-esteem.

10. *Mental health benefits* – Beneficial effect of music on mental health has been long documented. Depending upon the music, it can create a soothing effect, calming effect, a meditative effect, and it even bolsters confidence and courage (military band).

There are three fundamental ways in which children can engage in 'musical behaviour' –
1. *Listening* – by far, the most common and easiest of behaviours.
2. *Composing* – the most difficult and perhaps the least common.
3. *Performance* – this has two facets: The reproduction of music written by others and the ad-libbed creation of music in a certain context (what is commonly called 'improvisation').

Parents' role

Many parents are anxious to introduce their children to classical music at a very early age (or even before birth, in some cases, since many believe that even infants in the womb can benefit from listening to Indian classical Beethoven, Bach and Brahms).

Ask these parents the logic behind their thinking, and you will find them answering –

- 'Listening to classical music makes children smarter.'
- 'Musical training in the early years helps develop the areas of the brain involved in language and reasoning.'
- 'Listening to Mozart soothes even fussy babies.'

Believe it or not, these claims are true. Children do gain enormously from being exposed to classical music. Not only do they learn to utilize their minds better, but they also learn to think creatively, conjuring out-of-the-box solutions to everyday problems.

The earlier one starts training in music, the quicker and deeper the understanding of nuances in notes, rhythm, beat cycles, and various musical instruments.

Voice is the only living instrument. Even though we use it so frequently for speaking (and singing), most of us are unaware of the complexity of the techniques involved in voice production. While learning vocal music, students learn to control their voice production process to produce clear musical notes with desired variations of pitch, intensity and timbre.

The four basic steps involved in vocal training in Indian classical music are –

1. *Listening* – It is important to listen with full concentration, keeping in mind the notes, tunes, rhythm, speed, words, volume, and the tonal quality of the voice or instrument. The more deeply a student listens, the better the mapping of the musical nuances in the brain, resulting in improved quality of singing.

2. *Controlling the breath* – Singing takes over the entire respiratory apparatus, which mostly operates involuntarily under normal circumstances. Children learning singing need to learn this process of 'taking over' the respiratory apparatus to produce fine and steady notes. This can be done by learning breathing techniques. When singers cultivate the appropriate breathing techniques and train the vocal cords, they can sing very low notes and very high notes across octaves. They can easily eliminate the

unnecessary and unwanted wobbling or shaking of voice.

3. *Practice* – Practice is of two types:

- Singing something one is not familiar with - in order to learn it.
- Singing something one already knows - in order to perfect it.

   Regular practice trains and strengthens the muscles and voice production system. With practice comes control over the vocal cords and a growing sense of confidence and ease, which can be heard in the singer's voice.

4. *Physical and mental fitness* – Singing is physically and mentally demanding as it synchronizes our physical and mental states. Air cavities are the resonators of sound in our bodies. For a full, rich sound (with harmonics), all the air cavities – the lung cavities, pharynx, and nasal cavities – must be free from cough, cold, extra mucus, and other impediments. This is why there is so much emphasis on physical and mental fitness, even for something 'sedentary' like singing.

When teaching vocal music to children, it is important first to spark their interest in music. This can be done by teaching them –

1. Popular, simple patriotic songs.
2. Folk songs and bhajans.
3. Singing the seven notes (Do, Re, Mi, Fa, So, La, Ti, Do) in all kinds of long and short combinations in ascending and descending order.
4. Completing incomplete tunes or patterns (for example, guessing what the descending pattern would be for a certain ascending pattern) and creating their own patterns.
5. Flat and sharp notes; the variations in the frequency of the notes while singing.
6. Singing melodies without a composition, using a fixed grammar of notes.
7. Listening to the maestros to train their ears as well as becoming familiar with the twist and turns of notes in the composition being performed.

At home, children should practise along with a tanpura (a drone instrument) and harmonium. Regular practice familiarizes students with notes, beats and helps in voice training. The tempo while practising should go from slow, then double, then double again (and so on, as long as children can keep up).

For learning an instrument, say, violin, at home, children should first learn to hold the instrument properly, hold the bow and get the posture right, then learn to play each string individually, after which they can move on to play the seven notes and then finally graduate to simple 'alankaars'. The more children practise, the more comfortable and skilful they will become at playing the instrument.

Children should also be exposed to western classical and non-English world music. This can be done by going to concerts and listening to tracks online.

As part of homework, parents can plan special outings to shows, concerts, folk festivals, music festivals, or local productions of musicals.

Additionally, you can put on classical music for your children to listen to while they do their homework. The ideal choices would be instrumental, as anything with lyrics often proves to be distracting.

Schools' role

Mentoring in music can be either on a 'one-to-many' or 'one-to-one' basis. Children have more fun while learning in a situation that involves 'one-to-many'. In the beginning, introducing the fun element to learning is important. However, as children progress from elementary learning level, individual lessons become important for better learning.

'One-to-many' mentoring sessions once every few months are also recommended for children undergoing one-to-one lessons. This acquaints the children with their peers. Meeting peers with similar abilities is important as it inspires children and brings out the best in them. 'Jamming' sessions every few months will help children assess themselves as to what they have learnt and how far their learning has progressed since the last session. Good peer

review is great for learning, and meeting with peers encourage children to collaborate. After children have learnt at least one piece properly, they are ready to perform.

The performance may be as a part of an orchestra, where differently-skilled children collaborate under the guidance of a teacher to produce mellifluous music together. As their skill levels improve, children can start performing solo for family and friends at first, and then at school functions and other public platforms.

Dance

Dance is another means of communication, expressing feelings and emotions, or simply a way to release energy and get a feel of pure joy. Movement and moving to rhythmic beats/music is a primordial response. We are born musical; worldwide, people break into dance almost reflexively in response to all kinds of music, irrespective of the language of the lyrics.

Learning to dance involves observation of the moves made by the coach. Understanding the nonverbal messages expressed by the language of the body, facial expression, and eye movement is at the heart of dance.

Dance is one of the salient cultural dimensions of nations, societies, and communities. Each country and the regions within a country has a (local) form of dance. It is easily the most enjoyable way to introduce cultural nuances to the children.

Dance forms can be broadly categorised as classical or folk. Classical dance forms (including ballet) have a grammar with many specific aesthetics, technical, spatial, rhythmic, lyrical, literary, and emotional aspects involved.

Learning any classical dance form is a long journey. Years of learning and practice are required to be a solo performer, thus building dedication, perseverance, and persistence in children. Most classical dance forms can be performed solo. Classical dance forms have not only physical benefits but also have spiritual benefits. Classical dance forms are more about grace and composure.

On the other hand, folk dances express the aesthetics of a particular culture and are a form of social dance rooted in a particular custom. They reflect the region, lifestyle, aspirations, celebrations, and festivals (e.g., harvest) of a community and are part of the 'growing' up routine of children. Most folk dances are group performances with the objective of enjoyment, cultural assertion, and identity, and not much else.

Folk dances are mostly ritualised, offering a limited scope of improvisation. With urbanization, children need to especially

'learn' folk dances, as they no longer 'grow' with them. To perform folk dance, one does not need to undergo long formal training. Learning folk dance can be seen as a way of preserving our culture and customs.

The Benefits of Dance

The benefits quite overlap with the benefits of learning music, but the following are more specific to dance.

1. *Physical benefits* – Dance imparts various components of physical fitness – cardiovascular and muscular endurance, flexibility, strength, and reduces obesity. It also promotes good posture, agility, coordination, balance, control, strength, responsiveness, and speed. Dance amplifies the ability to focus and perform other physical activities. It is also a fun form of exercising. It helps children become aware of their bodies and capabilities.

2. *Coordination benefits* – Dance improves spatial awareness and fine motor skills such as hand-eye coordination, body-mind coordination, etc. Children familiar with complex and fast dance rhythms and patterns can also make faster and more precise connections in many academic and physical situations.

3. *Literacy benefits* – For young learners, movements are the preverbal expressions and a channel of communication. The path to literacy intertwines movement expressions and words to help communicate and understand new vocabulary.

4. *Communication benefits* – Dance involves nonverbal communication; delving into dance sharpens the learner's ability to portray messages nonverbally and understand nonverbal cues.

Let us briefly explore a classical dance form, 'Bharatanatyam,' for specific insights into learning dance.

Bharatanatyam is an ancient Indian classical dance form. All its aspects are well codified, documented in the ancient scripture *Natya shashtra*. Each dance sequence requires a combination of steps or positions with coordinated movements of the head, face and eyes, feet, legs, fingers, arms, torso.

Some of these are briefly presented here.

1. *Facial expressions* – Facial expressions, called *abhinaya,* are used to portrait emotions or feelings which are part of poetry or the character being depicted. In Bharatanatyam, there are nine emotions or rasas that are commonly displayed – *shringara* (love, eros), *vira* (valor, heroism), *karuna* (sadness), *adbhuta* (awe, amazement), *raudra* (fury), *hasya* (laughter, humor), *bhayanaka* (fear), *bibhatsa* (revulsion), and *shanta* (peace). These emotions are enacted in a stylized way. For example, the feeling of annoyance does not mean that the dancer would start scolding (as a movie actor would), but she indicates annoyance with the posture, facial expressions along with foot movements and hand gestures.

2. *Posture* – Body stance, hand, and leg position constitute a posture. The basic stance is called the *Araimandi* (the half-sit position). The leg is called *paadha bhedha.* The leg positions can be categorized into standing positions with hand gestures, simple standing positions, leaps, circling movements, plain movements, and gaits.

    The hand movements are called hasta. These can be either with one hand or both hands. Most hatsa gestures have a name and meaning.

3. *The costume* – The costume is stitched from bright and colourful sarees. A pair of anklets (*ghungaroo*) makes the rhythmic footwork of the dance discernible. Jewellery, bangles, rings, earrings, nose rings, and special ornaments for the arms and head are also part of the costume. The hair is either put up into a bun or plaited and is decorated with a semi-circular floral arrangement.

4. *Makeup* – Heavy lines are drawn around the eyes, extending outwards past the eyes. Similarly, the eyebrows are darkened and extended outwards with liner to accentuate the movements of the eyes and eyebrows, and make them more visible.

    A red dye called 'alta' is applied to the sides of the feet and the tips of the toes, and the fingertips. The centre of each palm is also

painted in a solid circle. The unique decoration draws attention to and emphasises the hands and feet movements by making them dramatic.

School's role

School provides a community of co-learners, appreciators, and imaginative creators. The purpose of teaching dance in school is not to make professional dancers out of the learners but to ensure the common minimum dance education (to enjoy and appreciate dance presentations) and to be not shy of dance for personal joy.

By the end of school years, children could be expected to –
1. Be trainable in dance sequences
2. Perform differentiated postures and nonverbal expressions in response to some music, rhythm, or beat
3. Be a good, reliable member in choreography of some dance form
4. Compose a small dance sequence from scratch for a song/music with movements, costume, props, lighting, background, etc.
5. Understand the role and scope of improvisations while dancing

Parents' role

Being the parents of budding dancers means having to support your children in many little ways – being their makeup assistant, costume designer/dresser, hairstylist, partner in rehearsal, 'counsellor' to soothe temper tantrums, and lift sinking spirits, last-minute chauffeur, and most importantly, their biggest fan.

Start by selecting an appropriate coach. The teacher/coach must be a professional dancer, and, ideally, a successful one. It will be expensive, but it is the best way forward if one can afford it. A 'school dance teacher' is expected to be better with children but might not have the mind-space, commitment, depth, and attitude of a performing artist and solo dancer.

Sustenance over a long period and in everyday routine is possible only with parental support. Besides, for children to take up dance as a profession, explicit parental support is critical for success.

To be specific, to make the most of introducing your children to the world of dance, the following roles would be helpful.

1. *Practice with children* – They may not like or want to practise alone, so give them company. But do not outdo them, be natural, and make it a good time together.

2. *Become the relationship manager* – Keep motivating the teacher/coach because they need encouragement and support now and then to remain motivated to work with children.

3. *Be in the loop with the coach* – Continuously engage with the coach to discuss the plan, progress, changes in plan, etc. The learning goals must be co-created, regularly reviewed, and updated with the coach.

4. *Be patient* – Listen and help children live with their stories and rants about their peers, coaches, rehearsals, etc.

5. *Genuine appreciation is valuable* – Inadequate, incorrect, or less-than-informed appreciation will do no good; be a genuine appreciator, and learning some dance alongside the children is a way to deal with this. At the very least, one can regularly refresh and add to the theoretical knowledge of it.

6. *Equip yourself to handle stress, disappointments, and failures* – Your children can handle it all just as well as you would, provided you too know how to 'live with it well.'

7. *Cultivate love for dance* – Personal immersion is essential to 'step into the shoes' of children as dancers. Even the simple choice of costume needs 'insider's perspective' on the parent's part.

8. *Be a regular at public dance performances* – Find time, resources, company, network to see and show dance performances.

You might have already guessed that these roles equally apply to learning many domains of knowledge and skills. And the parental imperative to be a co-learner was never as important as it is today.

Physical education

Sports involve physical exertion and skills that are used by individuals or teams to compete against another individual or other teams for entertainment.

Physical education and sports contribute to physical fitness, mental and emotional well-being, and social development but are also vital for the holistic development of children.

A list of the various aspects that benefit from physical education and sports –

1. *Early development* – Sports and physical education are fundamental to the early development of children and adolescents. The skills learned during sports contribute to their social and moral development. It also helps in perfecting gross and fine motor development. It develops strength and endurance.

2. *Social development* – Participating in physical activities can assist in the social development of young people by providing opportunities for self-expression, boosting self-confidence, socialisation, social integration, and building social capital.

3. *Character building* – Sports help build character. It teaches behavioural habits like motivation, discipline, tenacity, competitive spirit, responsibility, perseverance, confidence, and managing self-esteem. Sports also show the importance of key values and soft skills such as honesty, teamwork, fair play, leadership, etc.

4. *Deterrent to deviant behaviour* – Research suggests that sports can be used to reduce deviant behaviour such as truancy, use of tobacco, drug abuse, violence, and crime among children and youth. Sports and physical activities become an outlet for channelising negative emotions.

5. *Motor skills and kinesthetics intelligence development* – Physical education and sports enhance functional skills like coordination and movement accuracy, dexterity, balance, and 1physical flexibility. It helps children refine and expand upon

their repertoire of physical skills. Among younger children, physical education, educational games, dance, and gymnastics help develop fundamental motor skills such as –

- *Locomotor skills* – Involves moving from one place to another. For example, walking, running, hopping, jumping, leaping, rolling, skipping, galloping, climbing, sliding, propelling through water, etc.
- *Non-locomotor skills* – Involves moving the body while remaining in one spot. For example, turning, twisting, swinging, balancing, bending, landing, stretching, curling, hanging, etc.
- *Manipulative skills* – Involves using an object – receiving, catching, collecting, retaining, dribbling, carrying, bouncing, trapping, throwing, kicking, striking, etc.

6. *Health* – There is an overwhelming amount of evidence that suggests sports and exercise positively affect physical health, growth, and development. It has been seen that students miss fewer days of school due to illness and exhibit greater academic achievement because of the physical vitality gained from physical education. Long-term involvement in physical activity and sports also leads to being lifelong physically active. This extends the impact of physical education beyond the schoolyard and highlights its potential impact on public health. The biological benefits of practising physical activity for youngsters are –

- Developing healthy musculoskeletal tissues (bones, muscles, and joints)
- Developing a healthy cardiovascular system (heart and lungs)
- Developing neuromuscular awareness (coordination and movement control);
- Maintaining healthy weight
- Improving strength and endurance
- Improving blood pressure and cholesterol levels
- Avoiding injury
- Decreasing morbidity

7. *Educational potential and learning abilities* – Sport and physical activity also have positive benefits on academic performance.

According to a study by the National Association for Sport and Physical Education (US), there is a correlation between academic performance at school and physical fitness. Findings suggested that regardless of their gender or ethnicity, students performed better in both reading and math when they were also involved in ongoing athletic activities.

8. *Attitude towards school* – Several studies show that once sports are introduced in school, pupil attendance increases because an increase in the availability of sports activities makes the prospect of attending school more appealing. In this sense, sports activities in schools act as a gateway (if presented in appropriate ways) to encourage children and young people to attend school.

9. *Mental well-being* – Numerous studies have shown that regular physical activity in childhood and adolescence plays a therapeutic role in addressing many psychological disorders. Physical activity and exercise are psychologically beneficial for young people as they improve control over symptoms of stress, anxiety, and depression. It enhances self-esteem as it is linked with physical self-worth and physical self-perception, including body image.

Schools' role

Physical education has always been the most ignored subject in our education system. Most schools in our country fail to realise the importance of physical education in the overall development of pupils.

Sports education in schools is often deemed the polar opposite of what it actually achieves. While experts recommend that high school and middle school students should get 225 minutes of physical education per week during the school year, rarely do students get this. At the other end of the spectrum are the 'elite schools' that offer an amazing array of sports facilities.

Schools need to relook the sports programmes, and parents need to have a say in sports education – its quantity, quality, and relationship with academics.

Sports education needs to be widely discussed and given more recognition through a complete overhaul of the teaching and learning processes and resources.

Here is a list of ten perspectives that could help anchor the redesigning of sports education –

1. The purpose of sports education is to nurture students' 'bodily intelligence' – it is the primary reason for the inclusion of sports education in the curriculum.

2. The secondary reason for sports education is to identify and encourage the students, who might be considering pursuing sports as a career, but it will have to be significantly supported beyond the routine of schools once the promising students are identified.

3. Interestingly, this secondary reason has largely galvanised only within the past decade, a change spearheaded by IPL in cricket. Cricket and other sports are now becoming lucrative and legitimate career options.

4. Another reason, one of very recent origin, is that sports help inculcate '21st-century skills and attitude' such as team play, competitive spirit, living with loss, leadership, and reflex actions.

5. At the other end, a significant 21st-century affliction – sedentary lifestyle – is pushing sports education towards rehauling physical education so that it compels students to change their lifestyle and habits outside schools. However, this spirit of sports education seems to be getting lost in the massive expansion of sports facilities and sports mentoring in schools.

6. We need to ask ourselves if schools should promote too many team sports for the proper physical development of every student because such sports are not easy to opt for outside of schools. For instance, even a popular sport like badminton is not easy to pursue outside schools for want of 'an opponent'.

7. We also need to evaluate if team sport is necessarily equally productive for all children; for instance, taking a section out to play cricket as well as a basketball game in a given period will

still leave out a handful of students. Even among those playing, quite a few of them would be involved only at a peripheral level.

8. For most outdoor and many indoor sports, the 'period timings' are just not adequate. For instance, playing football, tennis, chess, or volleyball in a 40-minute period puts an end to the game will not do justice to the spirit of these games, which must not be lost out whenever the game is played in school.

9. The revolution in sports education should not come at the cost of the academic revolution. Academics cannot be compromised. Academics need to be transacted very differently in schools to ensure that no child is left behind. A great sports education must follow world-class academics in schools! Fortunately, academic excellence for all is not too tall an order.

10. And let us also not forget that it is far more difficult to get a 'good sports teacher' compared to a good maths or science teacher in most countries. It might sound odd to the uninitiated, but that is closer to reality. Thus, the recent expansion in sports education in India may have pushed the demand for sports teachers beyond the levels of comfort for quality.

It is time, the role of sports education is seriously evaluated, and a minimum common core set was created. We propose the following three-element common core for sports education in schools –

1. 100% productive sports time for 100% of the students during the sports period. That is, no student should have to wait for their turn any longer than a few minutes. Sports and activities should be selected such that all students are fully engaged and involved in the period.

2. Whatever sports or physical activities are promoted among students, priority must be given to those which help deepen life skills or are easily doable outside schools. For instance, running, throwing, long jump, high jump, and yoga are just some examples of activities that are useful life skills and do not necessarily require team members or opponents to indulge in. Incidentally, these activities are also very objectively assessable

for every student and open to self-evaluation, monitoring, and self-improvement by students – the ideal context for education.

3. Ideally, every student must be associated with one sports team – a sport that must be played in a way that the full cycle of the sport is completed over a few days or weeks. More importantly, all team sports must be played in cross-class teams to simulate realistic situations of competitive sports and continuously challenge talented students, pushing them to improve themselves.

To summarise, sports education needs to be redesigned and its equation with academic education rebalanced.

Art and design

> *"The aim of art education in the public schools is not to make more professional artists but to teach people to live happier, fuller lives; to extract more out of their experience, whatever that experience may be."*

Grant Wood

Art is one of the fundamental building blocks of human culture, every culture that has ever existed has had its unique art forms that it leaves behind for future generations.

Art and design education enhance spatial judgment and the ability to visualize with the mind. Much evidence from research on the brain indicates that engagement in fine arts is beneficial for the educational process. The domain of arts helps develop neural systems, producing a broad spectrum of benefits on aspects ranging from fine motor skills and creativity to improved emotional stability.

Every brain that learns to observe when it is young develops visual neurons that others lack. This is what gave rise to the common misconception that drawing is an inborn talent. The drawing brain is certainly different, but it is a difference that has been learned in response to observing, remembering, imaging, and reproducing things. When this starts happening at a young age, the child appears to have an inherent talent. We now know that adult brains can also grow new neurons and foster new skills, but the process is slower and harder for them.

Artists and designers create visual compositions using a shared knowledge base, but their reasons for doing so are entirely different. Artists start with a blank canvas and produce a work of art that expresses their views, opinions, or feelings and shares them with others, allowing the viewers to relate to it, learn from it, be inspired, and interpret it.

Unlike artists, designers set out to solve a problem – how to communicate a message effectively; how to make a product more ergonomic, efficient, and aesthetically pleasing; how to fulfil as

many needs as possible with limited resources. Designers convince their audience to do something – buy or use a service or product, visit a location, or learn certain information. The most successful designs are those that motivate their consumers to carry out a task. Design exists to fulfil a need.

Art and design are vital skills for becoming visual communicators at home, school, and work. To create an artwork or design a product, one requires the same knowledge base. Art asks questions while design answers them.

The various benefits of learning art and design are –
1. *Motor skill development* – Many of the motions involved in making art, such as holding a paintbrush or scribbling with a crayon, are essential for the development of fine motor skills.
2. *Visual-spatial learning* – Drawing, sculpting with clay, and threading beads on a string, all help to develop visual-spatial skills.
3. *Language development* – For very young children, creating art or just talking about it provide opportunities to learn words for colours, shapes, and actions. Children often use drawings to tell stories.
4. *Decision making* – According to a report by 'Americans for the Arts', art education strengthens problem-solving and critical-thinking skills. The experience of making decisions and choices while creating art carries out into other parts of life. *"If they are exploring and thinking and experimenting and trying out new ideas, then creativity has a chance to blossom,"* says MaryAnn Kohl, an American art educator and award-winning author of numerous art books for children.
5. *Inventiveness* – When kids are encouraged to express themselves and take risks in creating art, they develop a sense of observation, imagination, design, innovation, and invention that will be important for them later as adults.
6. *Creative thinking skills* – Children also pick up great thinking skills by working from imagination, inventing, designing, etc.

Some children love to design houses, machines, boats, cars, etc., others love to illustrate imagined stories. Imagination is excellent for the development of their creative thinking ability. Drawing not only provides the basis for other creative activities – like painting, sculpting, and printmaking – but it also helps children in reading, writing, and understanding – especially mathematics, science, and geography. There is a deep connection between drawing and geometric shapes and measurements.

7. *Social development* – The National Urban Alliance for Effective Education claims, *"Art education enables children from a financially challenged background to have a more level-playing field with children who have had those enrichment experiences."* Art activities help children gain the tools necessary for understanding human experience, adapting to and respecting other ways of working and thinking, developing creative problem-solving skills, and communicating thoughts and ideas in various ways. It aids in the development of self-esteem, self-discipline, cooperation, and self-motivation.

Apart from having classes assigned for art and design, it can be woven throughout the curriculum for a richly-textured educational experience.

Schools' role

As part of 'homework', do take children out to visit art exhibitions and galleries. Visiting art galleries and exhibitions is a part of visual education as well as an inspiration for children. Expose them to different artists and styles of paintings – surrealism, cubism, impressionism, etc.; the 'eastern' styles of China, Japan, South Korea; the various Indian forms (Madhubani, Tanjavore, Rajasthani, tribal). Sculptures, interesting monuments, buildings, installations, and anything to do with art and design could assist them in finding their interest.

To evaluate progress, there must be an established reference point for comparison. Save your children's untutored drawings in a folder. While in Class III, an untutored drawing from memory (before

receiving any kind of training) of a human, a house, a tree, and a vehicle can serve as an appropriate reference point. Most people carry the memory of impressions from kindergarten if no one teaches them to think differently. Keep adding drawings periodically to keep track of your children's progress in art and drawing.

Point out and affirm any progress to your children. The purposeful lines, colour, brush strokes, subject, and compositions are signs of progress. Talking to children about their drawings and giving 'feedback' is a tricky task. Parents and teachers alike must be very measured and friendly, talking in a childlike, meandering to convey their point of view. What is key here is that children must have their own definite story, logic, imagination, thinking, or design behind whatever is drawn and no judgement should be made on it. In fact, the thinking behind drawing should be the primary subject of the conversation, and newer art 'techniques' could be shared – but without any expectations that the children might use it.

Parents' Role

Anyone can learn to draw and paint! Drawing and painting are all about looking carefully at one's subjects and the relationships between their lines, shapes, forms, colours, tones, and texture. There is nothing that one cannot draw, and just about anyone can learn how to draw at any age.

Like anything worth learning, the skills of careful observation and eye-hand coordination improve with practice! It is imperative to help children understand that the more they look at the subject matter, the better they can draw it.

Copying, or imitation, is a powerful instinct in all children. It is a good instinct for many things but is counterproductive to creativity. Children also have other good instincts, like imagination and curiosity, that we should nourish alongside.

This is not to say that copying and imitation have no place in learning art. For developing observation and drawing skills, one has to learn to 'see like an artist'. When copying a series of designs of increasing complexity, children begin to notice visual details and

relationships they otherwise took for granted. In the process, they also learn to look more observantly at the world around them.

Children can start learning art and drawing by using thick crayons. First, they learn to make outlines, then slowly learn to fill their drawings with single colours, and then move on to shading and using multiple colours and other media. In the early years, it is best if children do not use pencils and erasers, as thin pencil leads encourage small drawings.

Using thick oil pastels and/or markers allows children to move quickly, make bigger/expansive drawings, commit to the drawing, and forgive their 'mistakes' (since it cannot be rubbed off). The important part about art is to give in to the process and not worry about the details. Displaying their artworks will build children's pride and self-esteem.

Children are naturally inquisitive and have a great capacity for imagination, creativity, and fantasy – all integral elements of play. They are curious and innovative thinkers. Young children explore, ask questions, and are not afraid of being judged by others. These qualities need to be nurtured to fruition, regardless of the profession they choose.

Howard Gardner believes that each child, by the age of 7, develops a capital of creativity, upon which he/she subsequently draws throughout his/her adult life. This well of creativity can be topped up throughout life. The richer the initial capital, the more easily creativity flows.

Allow children to be creative in their art and design projects, do not pull them down through adult perceptions and expectations. If the sun appears green in the artwork, so be it. American author and toymaker, Roger Von Oech, an expert on creativity, believes the roles of 'explorer,' 'artist,' 'judge' and 'warrior' are required to be creative. We, as parents and educators, need to allow each of these roles to thrive within each child to find their balance between the four roles. Creativity requires flexibility – expect the unexpected. The following is a list of outcomes one can expect from children in the junior classes –

1. *Drawing skills –*
   - Horizontal lines
   - Vertical lines
   - Straight diagonal lines
   - Wavy lines freehand
   - Circles freehand
   - Copying increasingly complex patterns, doing it quickly, and eventually drawing them from memory
   - Observing and then drawing still-life objects
   - Developing a basic understanding of line, shape, and colour by studying varieties of leaves, petals, stones.
   - Developing a basic sense of balance in the composition of artwork and using the given space gainfully.
2. *Design skills –*
   - Designing greeting cards for different occasions with appropriate motifs.
   - Making repeated patterns.
   - Using play dough to make simple 3D objects like fruits and animals.
   - Stringing beads together to make designs and artworks.
   - Making designs using shapes, numbers, and alphabets.
   - Using different media – clay, sand, chalk, soap, paper, papiermâché – to create multidimensional artworks.
   - Working on 'projects' such as designing a theme-based pencil holder.

Progress to expect by the time children reach Grade VIII –
1. *Drawing and art skills —*
   - Developing a good understanding of line, shape, form, colour, tone, and texture.
   - Drawing freehand parallel lines (straight and wavy).
   - Drawing up to ten concentric circles inside a circle with a 5-centimetre diameter.
   - Drawing freehand spirals.
   - Shading with a pencil using parallel lines (hatching), cross-

hatching, smudging, stippling.

- Studying light, shadow, and reflected light – converting circles into spheres; converting pairs of parallel lines into cylinders.
- Understanding perspectives and sizes.
- Understanding perspectives and colour.
- Studying one-point, two-point, and three-point perspectives.
- Drawing complex still-life compositions with the effect of depth created by using lights and shadows.
- Drawing and making artwork by studying nature ('plein air' drawing).
- Drawing the details found in trees, shrubs, or flowers.
- Drawing using grids.

2. *Design skills* —

- Making patterns and using repeated patterns.
- Studying typography and calligraphy.
- Designing fonts.
- Studying the colour wheel.
- Understanding different colour combinations and the system behind them.
- Understanding proportion – making the same simple cartoon in various sizes.
- Studying the simple icons used on the web then creating their own.
- Understanding the design process and using it to design a poster.
- Problem-solving – making 'scribble picture' using three colours (randomly scribble a complex closed shape then try to fill in its spaces with the colours in such a way the same colour does not share a common 'wall').

INTERNET FOR CHILDREN

"The growth of the Internet has been the biggest social and technological change of our lifetime. It is a massive force for good in the world in the way it drives growth, reduces barriers to trade, and allows people across the world to communicate and cooperate. As we saw this spring in the Arab world, it can help give the unheard a voice and hold governments to account. It will have a huge role to play in supporting sustainable development in poorer countries."

Francis Maude

The internet, and the larger domain of hardware and software, is a disruptive technology. Our near future is also not any linear manipulation of our present. The obvious and widely public is not what it is.

The ubiquitous internet — what is it?

The Internet allows instantaneous and limitless ways to communicate and interact, but it also creates opportunities for unauthorised access to and misuse of data, technology, and critical infrastructure, which may result in irreparable damage to reputation, financial loss, disruption, and, in some cases, physical harm.

In today's world, it is impossible and ill-advised to keep children away from the Internet, with online classes and assignments being the only way children can access school and teachers during the pandemic. However, as parents, we can proactively take measures to keep them out of harm's way. Instead of being wary of the Internet, parents should strategically and cautiously integrate it into their children's lives.

The advent of the 21st century has brought along with it a novel and powerful opportunity for learners to connect from anywhere and anytime with their teachers and peers; gather knowledge from debates, discussions, personal blogs, multimedia resources, non-traditional learning resources, and virtually access people, places, events and objects from all over the world. Using digital resources and tools for learning is fast becoming a great source of sustainable differentiation.

Of course, the learning benefits that the Internet provides come bundled with many legitimate concerns about cyber security and authenticity. However, as the world is only getting more digitised, digital literacy and digital citizenship are enduring realities for times to come.

The first lessons for children about cyberspace should be about the amazing new opportunities it has thrown in all spheres of life and career and how the opportunities will only multiply in the future. The issues of cyber safety and security should be discussed to ensure maximum and continued benefits of the ICT-led opportunities and not for avoidance.

For many students, the virtual world of social media has now become the real world, and maintaining a strong presence online

has become a vital task. A single 'like' on their photos or status can make or break their day. A negative comment can make them fall into the deepest pits of self-doubt. Their emotions are deeply anchored to activities on social media. No one wants to miss out on anything which is 'trending'; otherwise, they feel that they are not quick or smart enough to keep up with the latest gossip.

The following are the benefits offered by the various applications on the Internet –

1. *Intellectual benefits* – Internet assists learners in acquiring deeper knowledge by way of discovery through vertical and horizontal research in any area they are curious about or are interested in. It also expands learners' horizons by helping them explore on their own and through assistance – that is, what other learners and experts from across the world have to say and share about a subject.

2. *Social benefits* – Children learn to maintain various social connections and support networks across the world that otherwise would not have been possible, and they can access more culture-specific information than ever before. Online communities and social interactions foster unprecedented global collaborations and team-play opportunities, invaluable for bolstering and developing self-confidence and social skills.

3. *Creative benefits* – The Internet provides a medium for the active participation of many people from across the world on any subject. Children can blog, comment, create (textual, visual, and/or aural) content, participate in activities and discussions on a site, etc. This can support creativity in ways we could have only dreamt of about a decade ago. Students also get introduced to the concepts of copyright, fair use, and their rights as creators.

All three benefits are completely open-ended, and it is up to the individuals to make the most of them and reach higher levels of self-actualisation. However, as mentioned previously, this also creates many opportunities for cyberbullying.

Technology for children

Although 'technology' is one of the most commonly used words of our times, yet it is not easy to find a cogent understanding of the word.

The term 'technology' seems to have roots in 'tek', which means 'making wooden houses' by weaving wood together, and the Greek word 'techne' which means 'craftsmanship'. Thus, 'technology' implies 'the knowledge and skill of creating something new'. The meaning of the word has evolved much since then, and 'technology' now refers to the 'applied science' relevant to the industry. Simply stated, technology is the application of the knowledge of all sciences to create some product or service. It does not involve applying scientific knowledge to develop more scientific knowledge.

Linked to the industry, one key feature of all things called 'technology' is their feasibility of mass scaling – their easier replication across places, people, and purposes (they follow universal scientific principles). Implicit in it is also the sense that anything called 'technology' has a specificity of purpose. A particular technology will accept specific things like input and create an output of a specific kind. The same technology can achieve many different ends (for example products and services). Technology is not tied to an end; it is a means to an end.

A new product or service is made up of several technologies. The complexity of making new things harmonizes several technologies towards a common end (specific features of the product or service).

What could be the curricular focus and content for experiencing 'technology'?

Everything around us is 'successful technology'; otherwise, we would use 'other technology'. Thus, at the risk of sounding obvious, a technology curriculum would be about –

1. Improving the benefits/usages of the existing technologies
2. Creating new products/services/experiences using current technologies

3. Creating new technologies to improve existing products/services/experiences

4. Creating new technologies to make new products/services/experiences

Most notably, the same products/services/experiences will have different 'valid' technological explanations in different grades. For example, the 'logical' explanation of how a car moves on petrol/diesel or how a TV functions will vary in Grades II, V, VIII, and XII. This is also how science gets more granular with each passing grade.

Some examples of the contents of a 'technology' curriculum would be –

1. How can we make a better chair? Why?

2. What might a better pencil be like? How can we make better pencils?

3. What might be the differences in the 'technology' of cooking on a gas stove and a microwave?

4. How does the Internet work?

5. What are the different scientific principles and technologies behind growing rice/apples/tea?

There are simply infinite products/services/experiences and technologies to be explored; suggested improvements validated, and some new products/services/experiences and technologies tried out.

Interestingly, a similar set of products/services/experiences and technologies may be in focus across grades and the difference in the 'use of science' is to be noticed in children's explanations. The consistency, articulation, and visualisation of science are to be noticed in the children's explanations, not the accuracy level. The explanations will autocorrect and get increasingly precise with repeated exploration, observation, experimentation, and application.

Technology, not just coding

Of late, coding has become an integral curricular subject in schools across the world. It is considered synonymous with technology by an overwhelming majority of school educators, leaders, administrators, and parents. Just as school educators cannot be expected to understand technology truly; technologists, and K-12 service providers, cannot be expected to understand 'educationally sound' curricular content and experiences truly. This is why the blurred line between technology and coding needs to be rectified immediately.

Technology in school curricula has been defined too narrowly as ICT. For example, the popular focus on coding in schools, by default, promotes technology being the same as artificial intelligence/ machine learning/big data, distributed ledger technologies (for example, block chain), augmented/virtual reality, IoT, cognitive cloud computing and 3D printing, etc. Schools are flooded with offers from companies giving coding experiences to gain 'technology experiences'.

While ICTs are becoming the backbone or significant enabler of technological impact across all 'sciences', curricular imperatives call for children to be exposed to science and technology in a comprehensively experiential and aspirational level, before they can start addressing technological solutions. ICTs are only a part of the solution.

While children might benefit from learning to code, it is important to understand what schools are doing right and what they are doing wrong.

Teaching coding at schools is beneficial for children because –

1. Coding is an extremely relevant skill for the future. Coding will determine the way we interact with ICT devices (software and hardware). The knowledge of coding is helpful for those with careers in the ICT sector, but it also helps to make strategic decisions in all kinds of organisations.

2. It is a powerful means of training children to explore and visualise complex situations. It allows them to see the big picture, different components, and the interactions between the components. Hence, it strengthens logical thinking. So, it's not coding that is the key lesson; it's the ecosystem of coding.

3. It is the cheapest way to create prototypes of many ideas and learn their value. Once again, it's not coding that's important (it's the idea being prototyped).

4. It allows students to conduct hypothesis testing without a physical setup.

5. Pedagogically, coding is amenable to remote teaching. This dramatically improves the chances of reaching the last school, regardless of its geography. This also implies that coding can be taught at a lower cost compared to other subjects.

6. It provides students with self-diagnostics and precise and actionable feedback. This is a very valuable experience in self-learning.

Here are some of the inappropriate aspects in which coding is currently being taught to children –

1. Teaching coding as 'technology' skews the meaning of technology. It disconnects technology from science. It is important to keep the symbiotic relationship between science and technology as interactive and thriving at the school level.

2. Coding must not be taught until secondary just because it offers good career opportunities by itself. Effective coding experiences in a programming language must be offered from Grade XI onwards.

3. Until Grade X, coding experiences should focus more on learning the coding concepts, such as statements, objects, variables, arrays, conditions, loops, and functions, instead of focusing on an application domain.

4. There are too many programming languages, and the list is only getting longer. For example, there are multiple blockchain platforms, 3D graphics has their own 'language', and so does 3D

printing. Learning to code in any of these, or a couple of them, cannot be a significant goal; yet, getting introduced to a few languages is important.

5. With each programming work, apart from the programmers, additional professionals are required, such as domain experts who help build the software, domain professionals (doctors, for example), project managers, technical copywriters, designers, user trainers, and relationship executives more. Children must be introduced to the entire array of careers/experiences rather than focusing solely on one aspect, programming.

6. Promoting programming experiences and skills to develop mathematical and logical thinking is not tenable. The global crisis in math education can only be addressed through new and better – quality math education. Programming should not be introduced at the cost of the quality of core academics.

7. The current programming curriculum is not sound for middle and secondary schools as it is not correctly aligned with the goals of these school years.

8. Programming experiences increase the gulf between parents and children in understanding the fundamental nature of ICT. Hence, the programming curriculum must also involve the parents (it will be helpful for the children).

Cyberbullying

Bullying has been prevalent for many years, and all of us have consciously and subconsciously engaged in it as well as experienced it at many points in our lives. However, with the Internet, bullying has become a lot more common and vicious.

Cyberbullying is the use of ICT (Information and Communication Technology) to harm or harass other people in a deliberate manner repeatedly. It uses social media platforms, discussion groups, instant messaging, or SMS text messaging to support hostile behaviour by an individual or group with a clear intent to harm others. The hostile behaviour may constitute communication that seeks to harass, intimidate, control, manipulate, stalk, put down, falsely discredit, impersonate, humiliate or exclude the recipient. It can be more harmful than traditional bullying because it is more forceful and becomes difficult to avoid at later stages as it can happen in the 'safe place' home also. Children's reluctance to share their trauma with an authority figure or even their parents worsens the issue. The victims begin to avoid friends and activities, become quieter, and appear less confident, eventually affecting their academics and development.

A comparison between cyber and traditional bullying may be the best way to understand cyberbullying. A comparison of the two along five characteristics is presented below –

1. *Anonymous perpetrators* – Cyberbullies may be known people or strangers. In their online attack, they may even involve other people, who also may not know the prospective victim.
2. *Lack of constraints* – Unlike physical bullying, the behavior of electronic bullies is not bound by normative social constraints as they can remain virtually anonymous, using temporary accounts and pseudonyms to conceal their identity.
3. *Lack of monitoring* – Online forums are often characterised by openness and a lack of censorship. While some apps or websites explicitly or implicitly observe the dialogues in discussion forums and other public online spaces (for e.g., Facebook

pages and Twitter threads) to censor undesirable conversations and evict offensive individuals, but personal messages sent between users (such as electronic mails or text messages) go unscrutinised. Moreover, many children know more about computers and mobiles than their parents or teachers and use them discreetly, without their parents or teachers becoming aware of instances of bullying (whether they are involved as the victims, bystanders or offenders).

4. *24×7* – As mobiles have become ubiquitous, cyberbullying can penetrate even the walls of a home – traditionally a place where victims could seek refuge from traditional bullying. Mobiles make the victims perpetual targets. As mobiles are always on, cyberbullies have ample opportunity to make harassing phone calls, send threatening or insulting messages, or post inappropriate content.

5. *Impossible to avoid* – The victims may try to prevent cyberbullying by blocking messages, avoiding online forums or social media sites, changing their email addresses and phone numbers, or reporting offensive comments. However, this will not necessarily stop the publication of defamatory or objectionable content on the Internet, which can further be downloaded, copied, forwarded, and archived by others.

6. *Force* – The frequency, viciousness, multitude of means, number of people involved, and persistence of bullying in the cyber medium could be too high and significantly unnerving. As a result, it is relatively easier to get overwhelmed by this method of bullying.

The extent of cyberbullying can be assessed by looking at the following statistics –

1. Nearly 43% of children have been bullied online. 1 in 4 have experienced it more than once.
2. Over 80% of teens use cellphones regularly, making it the most common medium for cyberbullying.
3. 70% of students report seeing frequent online bullying.
4. 68% of teens agree that cyberbullying is a serious problem.

5. 81% of young people think bullying online is easier to get away with.
6. 90% of teens, who have seen bullying on social media, say they ignored it. 84% have seen others tell cyberbullies to stop.
7. Only 1 in 10 victims will inform a parent or trusted adult about their abuse.
8. Girls are about twice as likely to be victims of cyberbullying and are no less likely to be the perpetrators.
9. About 58% of children admit someone had said mean or hurtful things to them online. More than 4 out of 10 say it has happened more than once.
10. The victims of bullying are 2 to 9 times more likely to consider committing suicide due to bullying.

Impact of cyberbullying

Cyberbullying is rarely random; there is often a connection between the victim and the bully. The daily routine of most children leaves them open to cyberbullying. On average, they spend between 1 to 5 hours in cyberspace everyday. More than 80% of students using Facebook upload their pictures and personal information, and an astonishing 70% believe that sharing information online is completely safe. Being on social networks is almost like a necessity. Of the many 'friends' on their friends list, some might be virtual friends, and only a fraction might be known to the family.

Most of the perpetrators of cyberbullying are children themselves. The motive could range from anger, revenge, and frustration to entertainment or even boredom. Many indulge in it, thinking it to be harmless banter and for laughs – or just to get a reaction, but end up enjoying it. Others do it to bolster or remind people of their social standing or torment their victims to feed their egos. Easy access to computers and mobiles and the availability of leisure time lead many to indulge in such behaviour.

There are four major types of cyberbullies, reflecting the disparate intents behind cyberbullying –

1. The 'Vengeful Angel' – These cyberbullies protect themselves or others from the 'bad guy' they are victimising. This includes situations when the victims of traditional bullying or cyberbullying retaliate by becoming cyberbullies themselves.
2. The 'Power-Hungry' – These cyberbullies want to show that they are powerful enough to make others do their bidding and control others with fear. They often brag about their actions and need an audience. Seeking a reaction from their victims, they keep pestering till they get one.
3. The 'Mean Teen' – These cyberbullies plan in groups, either virtually or physically, and want others to know who they are and that they have power over others. The bullying feeds on admiration and silence of the victim and the bystanders. It dies

quickly if they do not get the audience or entertainment value they seek.

4. *The Inadvertent Cyberbully, or, 'Because I Can'* – These cyberbullies may be pretending to be tough online, as they feel angry or hurt, or are reacting to the hateful or provocative messages they may have received, without thinking about the consequences of their actions.

Interestingly, there is a common thread connecting the four types – a degree of coplay in cyberbullying situations. In a way, cyberbullying can be easier to handle – effective avoidance is one simple way.

The detrimental impact of cyberbullying on children are –

1. *Feeling vulnerable* – Being bullied from all corners can leave children in a vulnerable state. This can lead them to feel humiliated, angry, and dejected.

2. *Feeling overwhelmed* – Children can feel overwhelmed due to continued bullying, more so, when being targeted by multiple perpetrators and especially if they cannot see a solution or an end to the bullying.

3. *Loss of sense of identity* – Experiencing personal attacks can scar their core idea of self-worth and self-pride.

4. *Becoming unsocial* – Children, who feel unsafe, may start avoiding social interactions for fear of further bullying. They may even develop a very cynical attitude towards people and life.

5. *Feeling stressed* – Children can lose their self-confidence and suffer from anxiety or even physical stress (for e.g., they can start running a fever).

6. *Being suicidal* – In extreme cases, children can also consider committing suicide due to severe bullying and the absence of an avenue to deal with it.

Here are a few symptoms that can help parents identify if their child is being cyberbullied or is spending too much time on the Internet, potentially leaving them more open to cyberbullying –

1. Waking up early, especially to check their social media
2. Spending time and effort figuring out which post, status, or comment will receive the most likes – even in the middle of other tasks (e.g., always dining with a phone in hand)
3. 'Praying' for more likes and (positive) comments
4. Having a nocturnal schedule

Protection from cyberbullying at home

Awareness and education can help considerably in preventing and dealing with the consequences of cyberbullying.

Here is a set of five 'cyber-values' our children should be encultured with –

1. *Accountability* – Children need to be taught to think before they act. We need to educate them about the possible consequences of being involved in cyberbullying – as a victim as well as a perpetrator.
2. *Privacy* – Children need to be educated about the ways and reasons to be private in their public life, especially in the global medium that is the Internet. Their online information should be brief and their passwords well-protected.
3. *Blocking* – Children need to learn to say 'NO' and censor communication and relationships when necessary (for example, blocking all e-channels of communications with cyberbullies and ignoring their apparent overtures).
4. *Respect* – It is important to teach children to respect others and not to ignore their pain. If children are made to understand how hurtful and debilitating bullying can truly be, fewer may cooperate with (or even initiate) it.
5. *Trust* – Children must know they should turn to the adults in their lives in such situations instead of taking matters into their own hands. However, if we, the adults, expect to be trusted, we need to make ourselves worthy of that trust, by assuring to give them all the time and attention necessary to deal with any bullying reported.

Fortunately, there are quite a few ways to help prevent and control cyberbullying. However, it is less about technology and more about creating a better society for children – loving homes, caring schools, and sensitive communities. As a community, we need to equip children with the critical thinking and decision-making skills that they need to be safe, responsible, and technologically proficient cyber citizens.

Parents can start by being the 'trusted sources' that children can go to when things go wrong, online and offline. Children often avoid going to their parents, fearing punishment, judgment, or other such unpleasant consequences.

Keeping your children safe online does not necessitate learning much about technology – it is just a matter of common sense and communication.

Here are tips for parents to help prevent cyberbullying –

1. Talk to your children about cyberbullying before it happens. Work out strategies to address any potential issues and reassure your children that you will be there to support them.
2. Strictly instruct your children to refrain from –
   • Interacting with strangers online
   • Wandering online aimlessly
   • Provoking fights and aggressive arguments
   • Stealing content online (illegally downloading pirated movies and music, etc.)
   • Sharing personal details on a public forum
3. Try to learn about your children's offline and online friends.
4. Advise your children not to reply to any provocative messages/ comments from a cyberbully. Quite often, bullies give up the pursuit of a victim if they do not receive a reaction or response.
5. Learn to properly block all the possible channels of online communication with a bully.
6. Report cyber abuse to the appropriate authorities, online or offline. Cyber laws are getting more stringent while tracking cyberbullies is getting easier.
7. Talk to your children's school if an incident of cyberbullying involves another student. The school should have policies in place to manage such issues.
8. If your children have been involved in cyberbullying and seem distressed or show other kinds of change in behaviour or mood, it may be advisable to seek professional help.
9. Stay involved in your children's use of new apps, platforms, and technologies. Set up your account and learn about the privacy

settings to understand how best to protect your child. At home, ensure that the access to the laptops/computers and the Internet is majorly in the 'public areas' of the house, and their usage in 'private' spaces is as limited as possible.

10. Encourage children to think before they put anything online. Remind them that any information posted online can be impossible, if not extremely difficult, to remove completely. An inappropriate image posted today can have long-term consequences at a global level.

11. If you find undesirable personal information appearing online, you can disable it. You could also reach out to the concerned website or online service provider and ask to remove it.

12. It must be said that turning off the computer or phone is often not the real solution for bullying. Connectivity has become a lifeline for all of us – including our children. Do not hesitate to take offline actions for offences made online.

Career choices

We all want our children to make the best career choices. But we may not realise all how we play a pivotal role in this decision. While they should have complete freedom to make this decision, we can equip and prepare them to make an informed choice, best suited to help them realise their version of a 'good life'.

Let us be clear on a few things before we proceed further –

1. 15 years is no age to decide a career for the next 50 years. It was not the case when we were growing up, and it is perhaps even less applicable today, given the 'information flood' even on the most isolated career opportunities. As children are bombarded with multiple options, it is a very confusing issue for them.

2. There will not be any career choice applicable 'for life' in the unprecedentedly sci-tech times we are living in! It can only be one step at a time – the best career choice for a few years in the immediate future, and then the best for the next decade and such successive decisions.

The best career choices represent a journey in life. Here is a list of the dos and don'ts for the journey to discover them –

Dos

1. Encourage your children to pick a career option based on their passion, skills, and interest. Give them the emotional support and strength to make 'unique' choices, if required, rather than advising them to follow the herd.

2. Help your children pick a career based on the quality of life it provides rather than its financial compensation and other perks. Discuss the pros and cons, as objectively as possible, of the alternate lifestyles of families in the neighbourhood and in the extended family. The main goal here is to enrich the children with the knowledge of as many alternate lifestyles as possible and the manifestations of said lifestyles on the spouses, children, neighbours, etc. Relate all this to varied career decisions taken by those people.

3. Educate your children in a way that they have access to multiple career options to choose from. Ensure a whole-person development so that they can realistically explore and appropriately support ANY professional choice well into their 20s. Unfortunately, most children are forced to seek engineering, medicine, law, economics, etc., because they do not have any other real options in terms of knowledge, skill, aptitude, and attitude at the end of secondary school. And of course, we don't have enough confidence in them beyond the well-trodden paths because we know that we didn't prepare them for any such options.

Don'ts
1. Do not try guessing what the 'hot careers' will be 10-20 years down the line. Even Bill Gates or Elon Musk cannot. For children entering the school system in 2020, we would have to guess the 'hottest' career in the 2040s!
2. Do not start looking for 'hidden' or 'natural' talents in your children without first nurturing their talents and intelligence. The broadest range of nurturing care is a must till the teens.

Since this is such an important decision, it can be overwhelming and confusing for parents and children alike, but parents must be supportive and understanding at this stage.

We would also like to highlight that regardless of the career, success does not come overnight. Depending on the field chosen by the children, it may take them more time to establish their presence and make a successful living out of it. Careers in liberal arts, in particular, can take a significant amount of investment (and patience). While MBA students can start earning and living well much sooner in life, MFA students have to spend years in apprenticeship before reaching the same level of earnings as an MBA. This could mean limited financial security for an extended period and delaying life decisions like marriage or starting a family for a student of MFA.

There have been observations linking parents to the kind of career choices their children make. It is commonly said that 'being middle-class' is a construct of the mind. It is nothing short of astonishing when the most intensive global research on creatively-accomplished people ends up proving that in a 30-year longitudinal study of over 90 creative individuals, which included two Indians – the late maestro Pandit Ravishankar and neuroscientist V. S. Ramachandran. Hungarian-American psychologist Mihaly Csikszentmihalyi discovered that nearly 90% of the subjects came from either the upper or the lower class of the society. The inference from the research was loud and clear – the middle class is very averse to taking risks. It does not actively allow or support children to take up long and unpredictable creative pursuits.

In this context, we can now see why the overwhelming majority of educated middle-class parents want their children to pursue the supposedly 'safe' careers such as software engineering, law, medicine, and MBA – all similar to their profession. In the end, these children may end up underachieving their potential because they would be pursuing careers similar to their parents, in radically different times, without making the best of the life that they enjoy as products of the 21st century.

Another trend observed was the difference in parental influence; fathers are 'conformist', strongly preferring their children to seek 'safe careers', while mothers tend to be more liberal in educating their children. There is a gender bias, too – daughters face lesser pressure to pursue 'safe' careers.

As parents, you must make sure your children know the pros and cons of the many aspects of their choices, especially when it comes to the hardships of choosing an unconventional or low-paying career. Support them but also allow them to make mistakes. Some of the greatest life lessons come from failure, and few lessons are better internalised than those experienced first-hand.

Finally, you also need to be mentally (and, if possible, financially) prepared to support your children's decisions longer than what you received from your parents.

RECIPE FOR A GOOD SCHOOL

We have briefly discussed the 'next-generation' school in a previous section. The next-generation school is not just about better physical and virtual learning spaces, better auditoriums, better soccer grounds, better-designed labs, and such other improvements; it is about the 'Guarantee Of Overall Development' (GOOD) of every student – a comprehensively new view of school education.

The soft-infrastructure for a GOOD school is composed of –
1. A Good Principal
2. Good Teachers
3. Good Parents

It's all about creating a safe (physically, emotionally, socially, etc.) and happy environment for every student.

GOOD Principals

'For a good principal, success is all about growing herself and growing all others!'

A newly-appointed principal, Ms. 'John', walked into a poorly-rated school with full knowledge of the school, its student community, and the problem of teachers' attrition. The school was famous for all the wrong reasons, especially its students' behavior. However, the silver lining was that the school reigned at the inter-school hockey championships. In this school, just as in others, the winning sportspeople were treated like heroes. Unfortunately, these young sportsmen also behaved poorly, creating inappropriate role models for the rest of the students. They roamed the halls with their little gangs, missing their classes while disrupting other classes by making noise and talking loudly! Not surprisingly, this fostered an environment lacking discipline and focus on academics, resulting in sub-par academic performance.

Ms. John announced during the assembly that the school would no longer be participating in any tournaments or competitions. Many students were shocked, some struggled to muffle their smiles, but the sportsmen and their posse were beyond outraged. Later, they rushed to the principal's office. The calm and composed principal got up to receive them with a smile, but this did not placate the captain.

'You can't do this to us!' he shouted.

Ms. John replied, 'You all are great players at the school level. Some of you want to go on to play in national teams. That's a great goal! Sports have produced great leaders, war heroes, and intellectuals, but that only happened because not only were they good at sports, they displayed qualities of discipline, diligence, learning, and leadership for sustained periods in their lifetime. Besides, there is so much math and science in football, hockey, basketball, or any other sport.' She added, 'You all have it in you to succeed academically! If you all improve your grades by two notches in this term, I will allow you to play in the upcoming tournaments!'

The students fell silent. Some murmured in protest but could not formulate an adequate counter-argument. Ms. John remained steadfast.

She later had a meeting with her teachers. The message was simple: 'teach with no prejudice – help every child! Let's put in some extra hours if necessary!'

Parents were asked to monitor, share and support – all for the good of the students!

The sports teacher had perhaps the most critical role. After all, he was the role model for the boys! He took it upon himself to stay with the students after school hours, goading them to study!

Ms. John's assembly talks were inspiring, cajoling students and teachers alike to take up the challenge! It was tough, but before long, the school had transformed into a centre for learning and academic success!

Ms. John had turned the school around in academics with the help of every stakeholder while the sports achievements kept rolling in! Is Ms. John a GOOD principal?

Mr. Ramesh, the principal of a new school, neither had any previous experience of school leadership nor any professional qualifications! He had been a teacher until an opportunity knocked at his door in the late 70s – the school was in a village, and the students, who were children of farmers, were first-generation learners. The parents were aspirational, wanting their children to study in an English medium school. Each child was admitted to a grade appropriate for her/his age. These children had never gone to a school before, and if one were to test them, none would be eligible to stay in the age-appropriate grade she/he had been assigned to!

How did Mr. Ramesh meet this challenge? Mr. Ramesh did two things –

Firstly, he introduced a three-year matriculation group for students aged 12 and above. Year one would cover Grade V and VI-level English and math. A pedagogy order had been lined up for teaching English – speaking, reading, then finally writing. Math was all about strengthening the children's conceptual understanding of the four

operations and introducing fractions, simple interest, percentages, concepts of geometry, etc. Year two was to cover the levels equivalent to Grade VII and VIII. Year three was for promising students to prepare for the high school qualification test.

Secondly, for others, the focus was on the English language and math, followed by science and social sciences. The school eventually got affiliated with CBSE (Central Board for School Examination). Today, its alma mater represents successful doctors, engineers, IT professionals, and entrepreneurs!

With a differently-transacted curriculum, focusing on overall development and a boarding school culture inspired from the best of schools – the school did well on most parameters while keeping the local traditions and values intact. Is Mr. Ramesh a GOOD principal?

The fact is, principals, do their work in a particular context. These contexts change with location and aspiration. In India, there is a great difference between the principal of a public school and that of a private school. Public school principals are 'good' principals if they can deliver as per the goals defined by the government and be good implementers of the rulebook. Everything is structured – even their replies to parents will not go beyond a basic brief. This, of course, is not to say that there are no public schools that excel under the leadership of a very able principal, much as they might be working without any encouragement from the public school "system".

The scenario is very different for private school principals. As one of the co-authors has been the principal of reputed not-for-profit branded schools, as well as of reputed for-profit branded schools, he gets frequently asked about the difference in the role at both schools. He would mostly say with a smile, 'Parents stood at the gate when I was the principal of the reputed not-for-profit branded school, and I stood at the gate when I was the principal of a for-profit school!' The expectations today from the principals of private schools are very different. Their challenge is to create a self-sustaining culture of learning and excellence whilst still keeping abreast of the competition among the private schools.

A parent can recognize GOOD principals by the actions they take to accelerate every students' learning progression.

A GOOD principal will –
1. Have a great grounding in system thinking.
2. Be a learner-cum-researcher – always on the quest for new knowledge.
3. Believe in improving by innovating.
4. Have in-depth professional knowledge.
5. Be an instructional/educational leader, not an administration–focused leader.
6. Create learning communities within the school and collaborate with learning communities outside the school.
7. Resonate the community's aspirations.
8. Have the ability to work with teams by creating a shared vision and development plan.
9. Believe in systematic improvement.
10. Have exemplary leadership skills and be frequently delegating.
11. Be a successful communicator and negotiator.
12. Develop leaders.

GOOD principals use induction – involving parents and communities in the education of their children. They steer their schools away from pointless intrusions that divert attention from what the primary aim of school should be primarily – to educate every child!

GOOD TEACHER

We believe that each person, who is a teacher by profession, wants to be effective and be known as a GOOD teacher. Teaching is a profound professional responsibility! The impact of good teachers transcends the generation of their students – the proceeding generations are altered for the better through the experience of that one fortunate generation.

To be a good teacher, one needs to wear different hats in the classroom – learner, co-parent, and leader. Only when teachers are competent, creative, and caring can they ensure the success of each of their students.

It is, therefore, reasonable to expect a good teacher to be:
1. Professionally competent.
2. A learner at heart.
3. Responsible, rather than accountable.

In the previous sections, we have already discussed a bit about how we see teachers. Here is a more substantive description of what an ideal teacher in today's day and age should be like –

1. *Teachers as co-parents* – Having a genuine love for every student is the first pre-requisite for a learning classroom. This is true for all students from nursery to Grade XII. It can be best expressed by being patient with every student, devising multiple strategies for supporting every student, and working relentlessly until no child is left behind!

   By being a co-parent, a good teacher promotes and safeguards the health, welfare and safety of every student. The teacher works in partnership with parents and other professionals to help children overcome their shortcomings. Such teachers use induction to logically counsel children and inspire them to excel! For discerning parents, a good teacher should be accepted as an extension of their parenting.

2. *Teachers as role-models* – Good teachers always lead their students by example. The simple act of being punctual at all times, for example, can leave a lasting influence! The most

significant influential figures in the lives of children outside their own families are usually the teachers. On average, teachers tend to greatly influence their students with their impeccable behaviour and attitude, passion for what they do, capacity to learn and enrich students' learning, kind disposition, and readiness to be available after class to any student who might need their help.

Teachers ought to be nothing less than leaders with great communication skills and confidence and have the ability to inspire love and respect, and not fear, in their students. As sportspeople, musicians, or even artists, teachers subconsciously encourage young minds to be multi-talented! Teachers not only teach academics but also teach life's lessons, and remain their students' role models for life!

3. *Teachers as habitual readers* – Good teachers know that the required levels of expertise in teaching in school are higher than what they may have experienced in college. They need high-quality education and, ideally, be self-driven to facilitate their own learning via reading and research.

    To help others, one must have the necessary knowledge, skills, and attitude to first understand the issue at hand. Good teachers will strive hard to become fluent readers to best understand what it takes and feels like to be a good reader. This personal journey to becoming a fluent reader will equip teachers to effectively handhold every student to become good readers themselves.

4. *Teachers as effective communicators* – Stories are the atoms of communication, so good teachers are great storytellers. Spinning stories is as critical a factor for success in math and science as it is for success in literature and social sciences.

5. *Teacher as thorough professionals* – 'People' and 'processes' form the core of any activity. People performing an activity are more important than the processes created to perform the activity if the number of 'people serviced' is small, but the process of performance becomes more important if the number of 'people serviced' is bigger. If the average classroom had only

12–15 students, we would not have bothered so much about the quality of processes. Any deficiencies in the learning process would have easily caught the teachers' attention and set right at the level of the affected students. However, for classrooms with 35–55 students, there is no way for even the best of teachers to give personal attention to each student. For dense classrooms like these, the teaching-learning processes have to be driven primarily by effective processes, with good teachers ensuring that the processes are followed in letter and spirit.

6. *Adaptable teachers* – The Internet is the world's new public library, and most parents across the globe are adequately literate. Thus, good teachers will not expend their energy on 'teaching' their students. Instead, they will focus their attention on planning, assessing, reporting, and tutoring (providing personal support), especially the academically weaker students.

As parents, we can recognize good teachers if they do the following –

- Make the academic plan for each period.
- Let the 'agenda' of a particular class be known before the period begins by sharing the academic plan with the students and parents well in advance.
- Remove the handicap caused by information asymmetry (originally a concept in economics, here it refers to a situation where one party is more knowledgeable about a certain topic than the other) by sharing with students and parents pointers on the content that will be discussed during each period.
- Expect every student to read, practice, and come prepared for each period.
- Assess the knowledge and application of what students come prepared with for a period.
- Find specific gaps in the knowledge and application of the aforementioned pre-period preparation, then make (and share with students and parents) a list of gaps and their remedial content for each student.

- Handhold students who cannot get adequate parental support in remedying the gaps.
- Make the set-up of parent-teacher meetings conducive such that they are a great learning experience for both parties, and that ends in agreement, with a shared vision as to what they can do together to make a difference to the children's learning.

GOOD PARENT

In addition to the tips we have already shared for parents, here are some additional pointers to help you become a proactive member of the emerging school system –

1. Create cognitive dissonance just to support the rise of excellence in schools! Learned parents can always intelligently challenge the mainstream education system's long-held and outdated beliefs and counter the common supposition that schools and teachers know everything about teaching and learning. Give examples of the lapses you identified in your children's learning and explain how the teacher is not addressing or covering them.

    Teachers prefer to get away with offering a few off-the-shelf solutions to circumvent inconveniences but become conscientious if alerted about the chinks in their professional skills. Informed parent counselling pushes them to work towards becoming better professionals!

    We know many such teachers who have become the best of friends with parents to benefit from their wisdom.

2. Model yourselves into people your children should emulate. Seeing aggressive behaviour, pronounced disharmony, abusive languages, disrespecting people and property, exhibiting wealth, and overindulgence at home impacts our children more deeply than we know! Good homes are built of love, good behaviour, health, values, and safety!

3. Do not leave anything entirely on the schools. They try their best, but their incentives are not always aligned, and resources are scarce.

4. Encourage your children to treat their schools like a second trusted home.

5. Do not limit your children's aspirations in any way, even if the school does so.

6. Make it a point to prioritize and focus on your children's overall development (including academics).

7. Establish a rapport with your children's school by:

- ➢ Establishing a good relationship with teachers.
- ➢ Communicating regularly with teachers to keep abreast of the children's progress.
- ➢ Learning from teachers about the school's rules, procedures, curriculum, homework, assessments, project work, etc.
- ➢ Visiting the school to discuss issues and concerns as they arise.
- ➢ Getting involved by way of volunteering, benefiting the school, parents, and the pupil. Opportunities to volunteer include –
  - Participating in coaching and/or counselling students (talking about your life and profession on Career Day, for example).
  - Observing a class or supporting your children's classes by helping the teachers.
  - Participating in school events such as annual day, sports day, and Founder's Day.
  - Become a part of the school governance. This will contribute to the schools' openness and accountability and could potentially help schools strengthen their ties with the community. Parents' participation can be in the form of –
    - » Being a part of the parent-teacher association (PTA) and pushing for changes like the adoption of IT, personalization of education, improving student-teacher ratio, etc.
    - » Actively following educational trends, challenges, opportunities, etc., to keep schools informed.

8. Avoid burdening your children's upbringing with your personal baggage. Do not try to live life through your children. Instead, actively push them to be themselves!

9. Refrain from 'over-instructing' your children – especially through coaches and tutors – as it obstructs critical thinking, curiosity, and willingness to take risks.

10. Find a balance between giving your children the freedom to make decisions and supervising their academics, relationships, cyber activities, interests, participation in chores at home, etc.

11. Create an environment at home that is conducive to learning in the following ways –

- Enforce, at the very least, a 2-hour period every day when the television is off for good in all homes with school-going children (having no television at all is the ideal option).
- Encourage children to read 5 books across 2 different genres every month. If possible, every now and then, give books that are more complex than what they are used to.
- Read together for 90 minutes daily. We refer to the entire household – parents, grandparents, staff, help, and children by 'together'. Everybody can choose the medium and language in which they read.
- Try to learn enough math, science, and social science to handhold your children till Grade VIII.
- Regulate your children's use of technology – hardware and software – till Grade X.

12. Teach your children 'urban' survival skills –
   - Include some form of physical activity for yourselves and your children in your daily routine – be it an indoor or outdoor sport, walking, running, yoga, aerobics, cycling, dance, etc.
   - Push children to manage their immediate environment – their room, open spaces around the house, and, if possible, their neighbourhood.
   - Encourage your children to explore extracurricular activities like painting, skating, music, dance, etc. These can be mentally and physically beneficial.
   - Allocate time for meditating together in your daily routine.
   - Try to plan outings for art fairs, photography exhibitions, dance performances, music concerts, theatre shows, cottage industries, etc.
   - Involve your children in the work you do around the house – cooking, dusting, changing bed sheets, doing laundry, etc.

Of the many ways in which you can promote your children's educational progress, the most basic yet vital ways are –
- Providing hygienic and nutritious food.
- Providing an intellectually-stimulating atmosphere.

- Discussing the events in school and class.
- Discussing the various career and education choices.
- Actively support your children when they do homework in the form of ideas or suggestions.
- Actively support your children's creative pursuits and interests.
- Dining with the entire family daily.
- Travelling every now and then, even if it is to a close-by city or town, depending on financial and time constraints.

ASSESSING SCHOOLS

In addition to defining the ideal school, we also need to know how to assess schools at a preliminary level. School education is far more important to be left to purely professional/media/government assessments. Parents must develop insights on their children's school based on their personal assessment.

Parents are also the critical 'double stakeholders' of school education – as the 'customers' of the services offered by schools and as the proxy for a reason for schools' existence (children). Unfortunately, as most parents are not assertive, institutional inertia triumphs time and again. This section empowers parents to know and assert their rights as stakeholders by giving the instruments needed to push and mould better practices in schools.

Auditing schools

Here is an array of questionnaires*, organized by stakeholders. Parents must use the questionnaire to obtain an informed and evident evaluation of their children's school's readiness for quality. Looking for 'right answers' to the questions won't help you to really assess the responses from school. Look for the appreciation and commitment that school management, leaders, and teachers have in engaging with you and living up to their stated facts, positions, and thoughts.

There are essentially four kinds of questionnaires in this section on assessing schools. The first is actually a questionnaire to self-audit your children's school. It is designed to be easy for parents to audit the school's readiness for quality based on the publically available information on the school (such as on website, brochures, circulars), and information from school's communications to parents – to individual parents, or to the parent community. Feel free to augment the audit questionnaire for special conditions of the school or the community and any specific knowledge about the school. Schools may also be co-opted in this quick and preliminary audit, but this is not necessary for the audit.

The second kind of questionnaire is for assessing the vision and commitment of school administrators. The third kind is for school leaders, such as principals and HMs. The fourth is for the various subject teachers.

*We have called the set of questions a questionnaire because the intent is 'survey/statistical study' of the school's processes and resources to deliver the highest quality education.

School self-audit questionnaire

For all of these categories of questionnaires, the non verbal cues, tone, confidence, student-centricity, and the apparent love for children will be far more relevant and real measures of the individual's and school's impact.

Each of the 30 dimensions has three situational scenarios rated 1, 3, and 5. For each of the dimensions, pick the scenario that best

describes the school you are evaluating and rate the school. Add the ratings you have assigned to get a score. The maximum score possible is 150. Hopefully, you will find the questionnaire self-explanatory.

Assessing 'Schools as an institution'			
Dimensions of school	Rating = 1	Rating = 3	Rating = 5
How does the school advertise its 'success'?	Only the toppers' names and marks are advertised.	Average marks and toppers' lists are advertised.	Bottom 10 percent performers' marks, as well as Top 10 percent performers' marks are advertised. Subject-wise school average marks are shared.
Accountability for outcomes	School takes the credit for high performing students. Students and parents have to share the 'blame' for underperforming children.	School sees a role in students' performance, but the lion's share of the blame still rests on parents or the 'weaker children.'	School sees its role in students' performance and acknowledges the contribution of the parents and the external support; but the blame still rests on parents or the 'weaker children.'

Customisation for the community of students and parents	Highly uniform/ global in scholastic syllabus - almost no customisation for the local community conditions/ imperatives. Nominal customisation of coscholastic transactions - local art, music, sports, traditions.	Out of syllabus, episodic and symbolic integration with the local community's conditions and imperatives.	School has a unique character in academic transactions – local uniqueness and strengths, as well as weaknesses are taken care of.
Status/role of parents	Quite the opposite of the stated position in brochures. Role not expected beyond ensuring effective tuition, coaching, and counselling support.	Status remains high in pronouncements. Role enhanced but little support to deliver higher academic achievement except for teachers' prescriptions at PTMs.	Parents are encouraged not only to share their opinion but are also made key participants in learning and academic processes.

Subject boundaries	School follows the insular, independent, and often incongruent syllabus content that adds to the problem of students. For example, Grade IX physics uses trigonometry, but in math it is introduced in Grade X.	While the school does not take steps towards creating a well-organised syllabus content, a few teachers specifically reorganise their subjects' content.	School takes steps to ensure integrated, well organised syllabus content that is key to best development of concepts.
Timetable	School continues to operate with the illogical 40-minute periods – one big reason why teaching is more about thinking 'less' (short periods do not allow any time beyond 'information sharing').	Key subjects like math and science have longer, uninterrupted periods.	Different subjects have different class periods to best suit the subjects' requirements and students' performance improvement.
Planning	Almost all subjects are taught every day, and this comes in the way of internalising the concepts. Deep thinking fails to emerge in any subject because there is always a rush to reach the next concept.	Key subjects like math and science are repeated on alternate days.	All subjects, except the language of instruction, are repeated on alternate days; allows time/periods as is needed for understanding the concepts.

Communication	Parents are not really encouraged to initiate communication unless it is for administrative facilitation such as leave applications.	Parents are not really discouraged from initiating communication on some academic issues.	Parents initiate most of the communication and are duly responded to. School is transparent in sharing all details with the parents.
Parents as a resource	School fails to get parents involved in school activities.	Occasional parental involvement as resources for career counselling.	Parents are a resource for career counselling, assist in teaching English and/or math, and help in organising events.
Career preparation, including NTSE Talent scholarship exam prep	Starts Grade IX onwards, facilitated by external faculty support.	Starts Grade IX onwards, facilitated by the school teachers.	Starts Grade VI onwards, facilitated up till at least Grade X by the school teachers.
Career choices post-Grade XII	Mostly engineering where sciences are taken optionally; Charted accountancy/ finance by commerce students.	Mostly engineering, but a few opting for art, music, sports, and liberal arts studies.	Widest possible choice of careers – at least 10+ different types for a batch of 100 students.
Expectations from parents with respect to academics	Passive – a legacy of the times when parents were uneducated.	Active participation of parents in asserting aspirations is accepted.	Active – Academics is primarily transacted at home.

Expectations from parents with respect to home.	Just 'ensure' the homework is (somehow) completed.	Parents are expected to help with the homework directly.	Ensure study ahead and coordination with the school on remedial.
PTMs	Just a ritual – a token of consideration for parents. Schools do not expect much from parents.	Very structured PTMS with specific agenda & accountability.	Extensive, with detailed, shared agenda on every student and conducted over 4-5 times a year.
Overall responsibility	Unfairly shared; school is not responsible for the 'poorly educated' children.	Extended classes post-school timings are conducted for poorly performing students.	Evenly shared between school and parents.

Assessing 'Teaching'			
Dimensions of teaching	**Rating = 1**	**Rating = 3**	**Rating = 5**
Goal	'Teaching' the text-books' contents is 'end-all' and not based on students' actual understanding.	The goal remains the same – learning textbooks' entire contents – but schools ensure that all students fully understand what they are being taught.	Application level of textbook content is the goal and eventually limited by supporting students' ability to dig deeper and wider.

Nature of knowledge	Memory-based knowledge (mental bank of textbooks' contents is knowledge.	School tries to encourage serious project works, debates, and experiments as important steps to deepen the nature of knowledge.	Intellect- driven knowledge and skills as evident in debates, writings and promotes higher level assessment performance.
Milestone	Syllabus completion by the class as a 'whole'. Actually, as declared by the teachers.	Syllabus completion by as many individual students as possible.	Syllabus completion by every student.
Conversation in classrooms	Top down – 80% and bottom up – 20%.	50% top-down, 50% lateral.	Lateral – 80%, Bottom up and top down – 10% each.
Role of the textbook	Textbook is the 'book of books' (and the end-of-chapter exercises are the bible).	Internet resources are occasionally used in the classroom for discussions and presentations.	Curated digital con-tent/and multiple sources form the content base, may call it the new textbook.
The reading of textbooks	Students may get away without reading the books. Teacher is the 'lead reader' of the textbook (students may be asked to read aloud a paragraph at best).	Use some classroom strategies like jigsaw reading, group or individual silent reading.	No reading of any textbook content when in the class – book's content to be read at home; classrooms are only for discussions and exercises.

Assessments	Teachers who teach the students are also responsible for creating assessments, evaluating them, reporting students' performance, and remedying any gaps. Too much is dependent on teachers' professional and moral standards.	There is moderation of assessment papers by subject HODs, but it may not be comprehensive and transparent enough.	Assessment and evaluation are independent and completely transparent in all subjects, in all assessments.
Progress reports	Progress-reporting is gross (pass/fail; 80%, 50%; Grade A+).	Gross progress reports with some additional comments from teachers for every student.	Microprogress reports for every student.
Level of reading skill aimed for by the school	Limited reading ability required – less than a page a day! Even reading the English textbook is not made mandatory.	Reading skills are targeted at the communicative level (a few pages an hour). Many students do not reach that level.	Every student is expected to be at academic reader level (a few tens of pages an hour).
Remedial	Remedial classes are held but hardly enough to really ensure all 'weak students' gain from it.	Remedial classes are repeated until most students understand the concepts.	Microremedial and continued assessment until all flaws have been properly remedied for every student.

Nature of learning at home	Homework is too similar to the classwork done earlier that day; there are no new question types or reading to prepare for the upcoming classes.	Unmonitored but explicit expectations from every student to read beforehand for all subjects to be taught in the upcoming classes.	The reading and exercises being done at home are expected to be ahead of the work in class. The school digitally monitors the quality of education at home.
Follow-up on the learning gaps of previous classes	Previous classes' learning gaps are simply forgotten.	Prior knowledge assessment is done for each concept to be taught and gaps remedied, but no record is kept of such conceptual gaps in previously-taught content.	Cumulative progress report of every student accessible at all times.
Tuition at home	Frequent tuitions at home. It starts in the primary class for math. School does not care about what happens at home.	Tuitions at home are actively discouraged by the school; the school provides homework that may not need tuition support and instead enables parents to support the homework's completion.	Have evidence of Tuition-free home till class X, at the least.

Use of 'smart class hardware'	By teachers and using mostly standard outsourced multimedia content.	By teachers, and mostly teachers' own content.	By students and using the content created by them.

Assessing 'Partnership'			
Expectations from parents	Rating = 1	Rating = 3	Rating = 5
With respect to scholastic	Passive – a legacy of the times when parents were uneducated.	Active – participation of parents is expected.	Responsible – scholastic is primarily transacted at home.
With respect to homework	Just 'ensure' the homework is (somehow) completed.	Parents are expected to directly help with the homework.	Ensure study ahead and coordination with the school on remedial.
PTMs	Just a ritual – a token of consideration for parents. Schools do not expect much from parents.	Very structured PTMS with a specific agenda and accountability.	Extensive, with detailed shared agenda on every student and conducted over 4-5 times a year.
With respect to co-scholastic	Passive – co-scholastic subjects are not really important.	Active – practice at home is expected.	Responsible – excellence in co-scholastic is primarily possible at home.

| Overall responsibility | Unfairly shared; school is not responsible for the 'poorly educated' children. | Extended Classes post-school timings are conducted for poorly performing students. | Evenly shared between school and parents. |

Questionnaire for school administrators

These are kind of key guiding questions and can be asked at the time of admission and while your children are already enrolled at the school. Once again, there are no 'right answers/documents', but it won't be difficult for you to make sense of the responses because the book comprehensively equips you with all the relevant educational theories and practices. In fact, be confident. The book's contents have prepared you to hold sustained, constructive dialogues with most of the teachers and school leaders in your children's school. And you are also ready to discover more by yourself on the foundation that the book has ensured.

Here is the questionnaire –

1. Is there a school development plan documenting the goals envisioned for the school over the next five years?
2. What are the school's three key goals?
3. How do you attract the best teachers to join the school?
4. How can I assess that teachers recruited by you are good teachers, or how do you train your teachers to be good?
5. What are this year's three key goals set by the management for the principal?
6. Do you engage progressive mentors for the principal and other key positions in your school?
7. What are the management directives for the school staff regarding health and safety standards?
8. What are your expectations from parents? How does the school ensure effective facilitation of the same?
9. For the parents, what is the school's USP as an academic institution?
10. What are the three key challenges you wish to address with the help of ICTs?

Questions for school principals, headmistresses

Here is the questionnaire for school leaders –

1. What is the single most important goal of the primary school years? Why?
2. What is the single most important expectation from parents in primary school years? How are the parents encouraged to deliver the same?
3. On a scale of 1-10, how do you rate your school's performance in Grade XII and X Board examinations over a three-year period? What do you think contributed to that performance?
4. How have the students progressed from Grade VII-Grade X and then in Class XII over a 5-year period of the past three batches? What are the measures that you have taken to improve their performance?
5. How effectively is the school contributing to improving the students' reading skills? What is the evidence?
6. How is the teaching of English, the second language, different from the teaching of the first language, the mother tongue, if at all?
7. How is the school contributing to students' competence in spoken English? How effective is it?
8. How is the school raising the bar of students' competence in written English?
9. How is the school raising the bar of all teachers' competence in English in subjects other than English?
10. What is the progress reporting system up till Grade VIII? Is it detailed enough to direct targeted remedial action?
11. What is the school doing to help end the need for tuition at home?
12. What is the school doing to help build career awareness and preparations from Grade VI onwards?
13. How have 'smart classrooms' helped improve the quality of learning outcomes? Is it truly justified?
14. Do most of your students aspire to be engineers? If yes, what could be the reason?

15. What are the scholastic, co-scholastic, and life skills characteristics of your students?
16. What are the three innovative ways in which you have approached math education? What is its effect?
17. There seems to be too much emphasis on 'learning by doing' in science; what does science education in your school do to give students a deeper understanding of concepts?
18. How have visual and performing art education been overhauled to ensure the retention of every student's 'musical' and 'spatial' intelligences?
19. What are the three challenges being addressed by the school in social science education? How successful have you been?
20. What are the three academic challenges you wish to overcome by harnessing ICTs? Why have these not been harnessed by now?
21. How does the school evaluate its efforts in fostering organic bonds with parents to ensure coordination between the school and home? How can technology be harnessed to this end?

Questionnaire for teachers

It is critically important that parents evaluate their children's teachers and, in the process, help the school and the teachers grow professionally as well. We must not forget that it is only natural for humans to become lax over time for lack of effective supervision. Feedback is a crucial quality management tool. However, the truth remains that evaluating teachers is a very tricky affair – teaching is, without doubt, an art. The beauty of it is that there are innumerable ways for teachers to support every student in their class consistently. Does that mean that evaluating teachers is not possible? Not really. The most critical 'job' in the world cannot go unapprised.

Fortunately, teaching is also a science. Certain practices are universally accepted as effective and impactful – the so-called 'best practices'; for instance, assessing and revising prior knowledge needs before starting a new topic is one such universally praised practice. The professional audit of schools greatly relies on such practices.

However, even though parents cannot use the tools and techniques of professional audits, parents must be able to audit the effectiveness of teachers. Parents are the 'ultimate customers' and can know the 'ultimate truth' about teachers' effectiveness, way beyond the capacity of any professional audit.

What follows is the assessment questionnaire for subject teachers.

However, before engaging with teachers on their subjects, there are a few generic questions that can help parents broadly assess teachers in their professional attitude –

1. How happy are your children upon meeting the teacher outside the class or school?
2. What is the weekly 'talking-time' of your children in the teacher's periods?
3. How persistent is the teacher about remedying your children's academic weaknesses?
4. What is the depth of the teacher's positive observations about your children?

5. On what counts is the teacher a role model for your children?
6. How meticulous is the teacher about addressing errors and providing corrective strategies?
7. How much does the teacher involve your children in active learning?
8. Does the teacher provide challenges to engage your children in critical thinking and problem solving?
9. Does the teacher identify your children's learning needs and seek your help in addressing them?
10. Do you find any evidence of the teacher's impact on improving your children's performance, behaviour or attitude?
11. Does the teacher make it comfortable for you to discuss her/his work?
12. Is the teacher transparent and a good communicator?
13. Do you get a sense of the teacher's knowledge of content, and her skillsets, and willingness to learn?
14. Does the teacher work with families to support parents helping their children?

English teachers

- How many novels did you read in the previous quarter?
- What was the last non-fiction book you read?
- Who is your favourite author? Why?
- What books did you buy during the previous quarter?
- How many books do you have at home?
- Are your children great readers?
- How have you made your house a reading home?
- How do you ensure and promote the usage of dictionaries?
- How do you ensure the correction of written expressions?
- How can children's listening skills be improved? What is your opinion on pronunciation?
- How do you use short stories in your lessons? Why are short stories important?
- Which three fiction books would you recommend for my children?

- Which two non-fiction books would you recommend for my children?
- My child's communicative English is good, but she still struggles to write well. What are you doing about it?
- Have you considered starting a blog, primarily aimed at your students, where you discuss the various reading resources across genres?

Math teachers

1. What is the purpose of learning math? Why?
2. Why do you think students find math to be an increasingly difficult subject? What are you doing to overcome it?
3. What is the importance of 'tables' in the primary years?
4. What have you done to help put an end to tuition at home?
5. What is your explanation for children doing simple calculations on addition and subtraction but failing to solve word problems?
6. How are you improving your command of spoken English?
7. Which math book, published recently, would you make all your students read? Why is the book an important read?
8. How good are your children in math?
9. Why are the remedial classes not entirely effective? Why have you not changed the way remedial classes are conducted?
10. Which are the three websites you would recommend to your students?
11. Why do you not start a math blog for your students, posting relevant content there in detail?
12. Do you encourage your students to learn new math concepts using activities? If not, why?
13. How many distinct concepts are there in my children's math syllabus? How is their performance in each concept?
14. 14. My child can be very good at math, she/he just needs a little extra guidance. What can you do for us?
15. Apparently, no child is born a 'slow learner'. What actions will you take to ensure none of your students become slow learners?

Physics and chemistry teachers

- Why is your passion for physics or chemistry not rubbing off on my child?
- Which all science books did you read in the previous quarter?
- Which book would you recommend to children? Why?
- What have you done to help put an end to tuition at home?
- Why is completing the syllabus such a challenge in science?
- How did you improve your English language competence?
- Are your children passionate about science (and math)?
- Why do you not start a science blog for your students?
- How would you want to change the chapters and contents of physics and chemistry?
- Do you recommend a science kit for doing experiments at home?
- Why does my child not use Google for learning science?
- How many projects have you given in the last quarter?
- How do you ensure that your child has the necessary knowledge to get a new concept right?
- Do lab practicals get absorbed equally by all your students? If not, why?
- How do you ensure that the tests prepared by you cover the entire syllabus?

Biology teachers

- What do you think are the three most common reasons that explain why your students are interested in biology?
- Why do most students consider biology to be difficult?
- Why is biology considered more of 'rote learning' and less of a 'logic-based' subject?
- How do you teach delicate topics in class?
- What are the five most popular career opportunities around biology known to your students?
- What are the three environmental issues most passionately discussed by your students?

- Given the all-encompassing nature of biology, are your students encouraged to ask generalised questions?
- How do you deal with questions in biology that involve the concepts from other streams? How frequently do you come across such questions?
- How do you guide your students to study biology for their whole life and not just for the exams?
- What all topical discussions have been had in the class in the previous quarter?
- What were issues on community health discussed in class in the previous quarter?
- How many students discussed their health-related issues with you?
- What are the changes in personal hygiene and fitness routine that you have noticed among your students?
- What attitudinal changes have been noticed in students towards animals?
- What attitudinal changes have been noticed in your students towards plants?
- Which recent advances in biological sciences were discussed in class in the previous quarter?
- What were the five most interesting project topics chosen by the students on their own?
- What are the three most-visited websites by students?
- Why do you not start a blog on biology?
- What alternatives to 'smart class animations' have you used in your classes?

History and civics teachers

- What evidence do you have of your students' passion for history/civics?
- What do you do to encourage your students' interest in your subject?
- How would you want to change the history/civics syllabus content of your class?

- Which interesting new book on history/civics have you read in the previous quarter?
- What are the three historical-fiction novels you love recommending to children?
- How many books on history and political science did you buy in the previous year?
- What are your favourite civics books that you would like your students to read? Why?
- Why are students generally uninterested in your subject?
- What effect does your students' competence in English have on their understanding of your subject?
- How do you help students learn analytical techniques through your history class?
- How do you deal with history in totality – history of movies, music, sports, and business – in your class?
- How should important global and local events that will become a part of the history syllabus of the future be dealt with by your students today?
- What is your take on learning history for the exams vs. the perspective? What is your class' consensus on it?
- Notes or discussions, what do you consider more pertinent for history classes?
- What are three of the best projects given in the previous quarter?
- How do you deal with differing perspectives for the same historical event (terrorist or martyr, rebellion or mutiny)?
- Do you encourage discussions that go beyond the scope of the curriculum during class?
- Which people of international importance should students know about to better understand the evolution of comparative governing systems?
- How do you teach the perspectives of human rights and community engagement?
- How do you sensitise students to the issues faced by people marginalised in modern society?

Geography teachers

- Geography as science vs. a database – how do you deal with it?
- Why are geographical issues also usually national issues, and how can children be sensitised about them?
- What all tools do you use to make it easier for your students to understand geography?
- What online resources do you use for teaching geography?
- What outdoor activities do you promote for learning geography?
- Which careers in geography are your students aware of?
- Do you encourage discussions on the people and lifestyles from different corners of India and the world?
- What were three of the best projects given in the previous quarter?
- How do you encourage students to learn about the different places they visit during their summer breaks?
- Do you think geography can be as interesting as science? What do you do to make this a reality for your students?

Visual and performing arts teachers

- How do you personally envision the development of visual and performing arts in children?
- What must parents do to improve the motivation and development of children in visual and performing arts?
- Is there a syllabus for performing and visual arts for each grade level?
- What are the benchmarks you use for evaluating the performance of my child?
- How are these benchmarks used in continuous assessment and giving feedback?
- What specific steps are you planning for improving my child's aptitude and interest in visual and performing arts?
- How can your students prepare and self-assess for growth (like in math and science)?
- Why are the classical arts not rigorously promoted and pursued?

- How do I supplement my child's 'creative development' at home?
- Were the visual and performing arts integrated with the learnings of any other subject in the previous quarter? How did your students benefit from it?

Physical education teachers

- What is the goal of physical education in your school? Why?
- What are the physical 'fitness' standards, if any?
- Is the period allocated for sports enough to achieve physical education targets? What could be a better alternative?
- What do you do to ensure the physical development of each of your students?
- How do you monitor the physical development of every student, if at all?
- Do you link physical education to life skills during class? If yes, how?
- Which physical education activities are best suited for the development of students at all levels of fitness? How are these activities practised in school?
- What is the state of physical fitness of my child? Why is she falling behind?
- Is group sports a waste of time for my child? What is the purpose of group sports?
- Is meditation or some form of yoga a part of your class?

CONTEMPORARY THEMES

The global pandemic has galvanised permanent changes in K-12 ecosystem, as well as the hybridised K-12 processes and resources for good.

There is no going 'back to normal'. Besides, the best-kept secrets of classroom teaching are now public, the poor quality of rote learning is exposed. K-12 transformation is now given.

The following five are the particularly pertinent K-12 transformation themes –
- ICT in education
- The socialisation of children
- A clarion call to higher education
- The future of school education
- Alternate is the new mainstream

ICT in education

There is too much confusion about harnessing information technology for education, especially for school education. This flux is deflating the opportunities that ICT offers of ushering the transformative change in the quality of education that would 'work' for EVERY child. Worse still, despite being seriously engaged with ICT for the last ten years, the outcome for schools has not been encouraging (for example, reading and math are not getting any better). In some ways, the outcomes are rather disheartening – the equity in education is not improving, and cyberbullying is much more dangerous than physical bullying.

Here are the top three reasons why ICT in schools is failing despite being central to innovations across a multitude of other domains –

1. ICTs are presented as strategic tools for transformation when they are not. They are the most critical and tactical backbone for any transformation in education. Strategically, children's education will remain human-centric in this century. ICTs have nothing to offer by themselves for the transformation – they can only facilitate any transformational goals that we set for the education system. The starting point for ICTs in education is not technology; it is the education system itself.

2. ICTs in education are driven by technology companies with little appreciation for the complexity of education, teaching, and learning. In rarer instances when educators drive it, the transformative capabilities of ICT are not internalised. Instead, they are used to raise the efficiency of the current ineffective education system. Educators are not seeking ICT to achieve new goals like ensuring the success of every student, enabling first- generation learners such that they can develop like fifth-generation learners, and maximising the diversity for career discovery.

3. ICT in education is too school-centric. It does not seamlessly integrate families, neighbourhoods, and communities into the educational system. This is an antithesis to how ICTs are creating a seamless world. ICT must be imaginatively deployed for the

two-pronged process of reimagination –

➤ Creation of design and system responsible for all-empowered families, neighbourhoods, and communities and the role of families in education

➤ Disassembly, redesign, and reassembly of the entire school system

Now more than ever, as we face a global pandemic, we must explore the use of ICT in education at a deeper level. The world of educators, administrators, parents, and even children are wiser today about the issues with blindly adopting ICT in education.

The online classroom/teaching was the teachers' and school leaders' response, without much guidance or handholding from school administrators/management. In these disruptive times, school leaders and teachers are not equipped to decide for or against ICT in education. School managements need to step up and play a more proactive role.

A note for school managements on educationally-sound remote education

Let us not blame teachers and technology for failing us in this period of emergency remote learning. Technology is neutral; we did not and still do not know what we want technology to achieve in education. It did a great job of ensuring online teaching. Yet, online teaching itself is the problem – all classroom teaching drawbacks only got magnified – but technology cannot be held responsible. We cannot blame teachers because school leadership – going up to the highest levels in Government – made them conduct those classes without eye contact, among other challenges!

Before we get into how school-mediated remote learning should use technology, let us also clarify that technology is essential for dramatically transforming educational processes. The worldwide web is good enough as a resource. Digitalising curated experiences and imaginations beyond a point is not educationally sound, besides being on the wrong side of the digital divide issue.

What is needed on the resource front is new curricula, new

textbooks, new supplementary readings, new experiences, experiments, etc., set in every child's immediate context and include parents and the local community (who must also academically grow with their children).

Technology focused on developing AR/VR (Augmented Reality/ Virtual Reality) lessons, gaming, and other immersive experiences for powering access to resources and the broader world information and society are secondary needs and just desirable. Such resources are anyway more appropriate for (senior) secondary students.

Not to mention that we do not want AR, VR, and gaming to do anything with language, art, music, play, sports, math, history, political science, geography, and most of the sciences (i.e., school science) except for intricate multi-dimensional knowledge such as climate change and unique environmental complexes. It is distressing to see the high hopes school leadership and technology giants have pinned on AR, VR, gaming, etc., as game changers in school education.

Looking at remote teaching, here are the top ten goals for technology applications in improving the process of education –

1. Giving up the 'pedagogic approach' in 'out of sight' situations where only the 'andragogic approach' will work (as discussed in the section 'Know our Children').

     Thus, we need minimal live teaching, teachers' videos to be considered a resource – not the resource, encouraging lateral exchanges among students as the backbone of learning.
2. Seamless integration of 'in class' and 'out of class' resources, practices, processes. 'In class' and 'out of class' experiences should not get out of sync with one another. For instance, pre-teaching assessment, pre-reading, post-teaching assessment, and immediate remedial inputs based on a post teaching evaluation must precede online teaching.
3. Ensuring the anonymity of the learners to encourage all students to participate – that is, dynamically randomising the online identities of and for the learners. In contrast, real identities remain visible to teachers.

4. Encouraging all learners to (anonymously) participate by stopping the two-way voices modus operandi and accepting participation through written texts instead.
5. Ensure all learners' participation – a one-click monitoring tool with teachers to know how many learners responded to each task, private messaging with all the defaulting ones, etc.
6. Creating a new teaching ethos using practices that push EVERY learner to respond to every interactive task and put to rest the intimidation students feel alongside their more 'talented' counterparts, especially when the 'talented' students hijack teaching-learning experiences.
7. Providing private and instant feedback to learners if the teachers want (without the teachers having to put much effort into it).
8. Creating a record of every student's interaction for a period, topic, chapter, etc., accessible to teachers, students, and parents.
9. Using the internet as a medium of learner-generated demand for knowledge and fact-checking written text. Providing students the ability to access the community, teachers, parent pool, and other volunteer support (which may also include senior students) will ensure three levels of interactions – section-level, grade-level, parent-level (and, ideally, volunteer-level and community-level as well).
10. Giving learner devices that will capture their writing, math solutions, diagrams, drawings, etc., in their handwriting and digitally light and bandwidth-friendly ways.

This discussion is just to enlighten parents to speak up and commit to ensuring the successful education of their children while engaging with schools in discussions on the appropriate use of ICT. Governments, school leaders, teachers, technology companies, and educators have failed to arrive at a consensus on the goals of ICT in education. It is up to educated parents to make ICT deliver its potential by personalising the entire educational context for every student and organically connecting schools, parents, communities, and organisations.

The socialisation of children

What is socialisation?

Socialisation refers to the process of informing and influencing the behaviour, choices, values, and aspirations that children exhibit as they grow up in society. Socialisation enables children to become aware of, appreciate and learn the values and beliefs, good and bad, impulse and conscience, expectations and role obligations, and norms of social transactions in a particular cultural group or society.

Experiencing, validating, updating through transactions daily is at the core of socialisation.

Socialisation is driven through interactions in the family, peer groups and mentoring agencies at school, and other social entities of extended family and social events. Socialisation, irrespective of which agencies bring it about, teaches them to discern between impulse and the rigour of control and conscience. It brings about an understanding of different roles that they would play as members of society, from being a child to being a value-adding worker and being a spouse or partner of another individual. It is the core of preparing children to become contributing and influencing members of society by transferring norms, values, beliefs, and behaviour to the future adult members of society.

It could be easy to see that the family and the school are central to the socialisation of children. Both institutions play their role, and the eminence of one or the other does not perhaps lend easily to generalisations. While that may be, it remains beyond debate that children need extensive and copious avenues to learn about norms of behaviour, contextual to society, and opportunities to give and receive stimuli to develop their discerning senses. To that extent, socialisation as a core plays among children and their upbringing couldn't be under doubt.

The socialisation of children is a very critical element of education!

Why is socialisation becoming a challenge?

Ironically, it is becoming a challenge for both families and schools. The more important reasons for socialisation becoming an educational challenge for societies across the world are –

1. There is no agreement among local communities, families and institutions, such as schools, on the specifics of the values and beliefs, impulse and conscience as well as role obligations, which are held dear by all.
2. The high degree of latitude in social norms and deference due to the norms implies parents and teachers individually display a high degree of tolerance to deviance (despite whatever we may agree on collectively).
3. Parenting is generally 'softer' than what may be desirable for ensuring a climate of cherished socialisation.
4. The virtualisation of everything social is an unmitigated spoiler; in the process, all 'pedagogical approaches' are defeated.
5. The core significance of socialisation is perhaps not vividly apparent to stakeholders. The fact that there is a science and body of knowledge available is mostly lost on most.

What must parents do to ensure happy socialisation?

1. Articulate and evolve explicit and implicit dimensions and details of the aspirational socialisation within the family.
2. Get your children's school to publish the school's own 'success card' on agreed socialisation dimensions.
3. Emotionally invest in seeking neighbourhood and0.17 extended family contexts that support the desired socialisation.
4. Get the academic pressure off in the family with early success in reading and math; an academically successful childhood is a great substrate for everything else.
5. Especially watch out for bullying – physical, emotional, social, and virtual; handling bullies is complex but very important.

Socialisation of home-schooled children — bursting the myths

A very common socialisation-related issue faced by home educators is overprotecting their children from the real world. If this is true, at least one researcher (Bliss, 1989) does not consider this a serious problem. She argued that, *"Protection during early, developmental years for purposes of nurturing and growth is evident in many arenas: plant, animal, and aquatic. Why should it be considered wrong or bad in the most vital arena, human development?"*

The authors have personal experience with raising their children in a home-schooled environment. Despite one of them being relatively introverted, they have seen their child grow up into a vivacious person with an assertive bend. What mattered was that they were able to successfully impress upon their child the assertive behaviour – a key target behaviour. Assertiveness is a purely personal attribute and needs a rather formal context, awareness, and training; schools offer aggressive or passive behaviour – the more default positions. Eventually, being assertive is about speaking one's mind, listening to others to offer options, offering modifications to the offers of others, and agreeing on a common understanding.

The billion-dollar question (everyone on earth seems to have the same first and the last important question on 'home-schooling') – "But what about socialisation?" The stereotypical home-schooled children are often portrayed as being shy, passive, and lethargic because of their isolation from the normal socialisation found in formal schooling. Each home-schooled youngster is assumed to be weaker in interpersonal skills and social development measures compared to the conventionally-schooled children.

Several studies on home-schooled children in the USA and many compare the developmental differences between home-schooled and conventionally-schooled children. We briefly quote from a couple of these study reports.

Stough (1992), looking particularly at socialisation, compared 30 home-schooling families and 32 conventionally schooling families and families with children 7–14 years of age. According to the

findings, children who were schooled at home *"gained the necessary skills, knowledge, and attitudes needed to function in society…at a rate similar to that of conventionally schooled children."* The researcher found no difference in the self-concept of children in the two groups. Stough maintains that *"insofar as self-concept is a reflector of socialisation, it would appear that few home-schooled children are socially deprived, but that there may be sufficient evidence to indicate that some home-schooled children have a higher self-concept than conventionally schooled children."*

This echoes the findings of Taylor (1987). Using one of the best validated self-concept scales available, Taylor's random sampling of home-schooled children (45,000) found that half of these children scored at or above the 91st percentile – 47% higher than the average conventionally-schooled child. He concludes: *""Since self-concept is considered to be a basic dynamic of positive sociability, this answers the often-heard skepticism suggesting that homeschoolers are inferior in socialisation."*

From the findings of these two studies, it would appear that the concerns expressed by teachers, administrators, and legislators about socialisation and homeschooling might be unfounded. Indeed, Bliss (1989) contends that in the formal educational system's setting, children first experience negative socialisation, conformity, and peer pressure. According to her, *"This is a setting of large groups, segmented by age, with a variation of authority figures… the individual, with their developmental needs, becomes overpowered by the expectations and demand of others – equal in age and equally developmentally needy."*

Webb (1989), one of the few researchers who has examined aspects of the adult lives of wholly or partly home-educated people, found that all who had attempted higher education were successful and that their socialisation was often better than that of their schooled peers.

Dr. Larry Edward Shyers looked at how home-schooled children treat other children. Shyers found no significant difference between his two groups in scores on the Children's Assertive Behaviour

Scale. But direct observation by trained observers as measured by the Child Observation Checklist's Direct Observation Form using a "blind" procedure, found that home-schooled children had significantly fewer behaviour problems than traditionally schooled children when playing in mixed groups of children from both kinds of schooling backgrounds. This observational study was reported in some detail in the 1992 Associated Press article. Shyers concluded that the hypothesis that contact with adults, rather than contact with other children, is most important in developing social skills in children is supported by this data.

Dr. Shyers also measured the self-esteem of the home-schooled group of 70 children in his study and compared that with the traditionally schooled group of 70 children between ages eight and ten. No difference was found between the two groups on the Piers-Harris Children's Self-Concept Scale, a widely-used measure of self-esteem. However, measuring "self-esteem" at that age may not be a great idea.

By the way, Shyers's thesis has a thorough bibliography and is a very good review of the prior literature. Readers interested in finding out more about home-school socialisation would do well to consult Shyers's sources.

In 2003, the Home School Legal Defense Association commissioned the largest research survey to date of adults who were home educated. Conducted by Dr. Brian Ray of the National Home Education Research Institute, the study surveyed over 7,300 home-schooled adults. Over 5,000 of them had been home-educated for at least seven years, and the statistics in this synopsis are based on their responses. The results confirm what homeschoolers have thought for years: "No problem here."

In any case, be it home-schooled or formally schooled, socialisation happens in families, primarily in the early months of a newborn's life, and moves naturally with infants and young people when they start exploring, playing, and discovering the world outside, particularly people. Socialisation continues throughout the

life. People learn expected behaviours, interactive strategies, and the skill to listen and learn.

Socialisation is not inborn; it is learnt! It helps the children to grow into social beings, which by nature humans are! Hence, it is important for parents not to cripple social development by rigidly controlling and limiting opportunities, guiding the child in making choices, and ensuring learning takes different roles with varying social structures.

A major objective of socialisation in the school setting is to make a child socially competent. A child must develop skills that allow him or her to function socially, emotionally, and intellectually within the school environment.

Social interactions teach resilience, skills in conflict resolution, and respect for diversity. Needless to say, children learn to be part of the team through role-play and structured small group interactions! Surprisingly, most children learn ethical behaviour, gain confidence and courage and use them to influence peers positively and manage bullies. Structured interactions help in listening and language development.

Therefore, it is important both for parents and schools to provide opportunities and encourage children to acquire social courtesies and learn about accepted perspectives and "styles" of expression. Social competence adds value to a child's aspiration of quality life!

A clarion call to higher education

We now know a significant lot about securing the best global school education for our children, with or without schools. Yet, every school must transform, play its part in what is in their DNA, and support global-scale socio-economic transformations as we are ushered into the knowledge age.

Interestingly, the pace, scope, and quality of school reformation will remain incremental unless and until higher education goes back to the drawing board. No less than a revolution in higher education can set the school system on the right path. This may seem like giving up hope of new-age school education, but that is what it is.

Indeed, the most crippling affliction of the school education system is its complete subordinate position to higher education and that the higher education could not care less about its debilitating effect on school education's organic existence and vibrancy. Unfortunately, this understanding of their relationship is one of those unuttered realities that have faith-like sanctions.

School goals – conspicuous by their absence

School education goals have always staunchly reflected their social roots, schools being a critical social infrastructure. Naturally, when the current school education format started to mass-scale in the 19th century, it set sights on powering the industrial revolution (a humanity-level transformation).

It is no surprise that schools are unique organisations – their goals are telescopically viewed. School goals magnify and present things far beyond the school's scope and sphere of influence. If it sounds unreal, here is a mission statement of a randomly picked 'good school'

"To provide a learner-centric education for children so they can achieve their full potential in the respective fields of education they pursue and build a better world."

School years – light only at the end of the tunnel

Pertinently, this distant-goal affliction manifests in at least five undesirable ways in school education –

1. (Parents of) Children in pre-primary see through the school years into higher education (most Indian parents know their 4-year-old has to grow to be a computer engineer, doctor, lawyer, MBA, or economist) – as if school years are just pre-designed career prep schools for children.

2. Pre-primary, primary, and middle schools have nominal educational milestones– it is all about achievement in secondary school.

3. Childhood itself is just 'waiting to be adult'; school years are just a mandatory passing phase in many societies worldwide.

4. Parents and governments are pushing schools to focus on overall development because employers are focusing on 'soft skills' (at the cost of academic quality, only so much is possible in a day's timetable and with limited resources).

5. The worst is the lack of clarity and commitment of the school education system to 'year-on-year value addition' in the development of the students; schools are designed for 'K- 12' outcomes, not grade-wise development milestones! Even parents and governments don't seek grade-wise achievement assurance from schools; secondary school outcomes are what schools are for.

Consequently, in most schools, the processes and resources are by default dictated by the highly empirical educational framework and evidence rather than a theoretically well-founded or deductive educational framework. The school education system is disappointingly low-tech.

This is not to say that we know all about how we learn or parents do their part of the deal in educating children, but schools must own up and become serious in their approach to education in practice.

School education revolution in waiting – microscopic view of goals

If only schools could be re-designed for sound and sharp yearly developmental milestones to be achieved for every student, then every family would have happy children. We just need schools to be schools. Not 'waiting lounges' for the flight to higher education.

Ironically, if only schools could be 14 years of development, higher education won't be necessary for most students.

Higher education – let the truth be told

The higher education system has hugely benefited by how schools are goaled, auto-fuelling an ever-growing demand for its services! But higher education has not tried to improve the school education system. After all, higher education is the seat of research and continuous development.

In fact, higher education has exacted a heavy price from school education for its own sake! Higher education deliberately and consistently kept nibbling at alternatives to higher education, such as much valuable and regarded formal apprentice systems, to build professional competencies. Till date, finance offers very powerful apprentice and open-certification routes to the most attractive career opportunities, but such other higher education routes are stifled.

It is time that we cut the umbilical cord between school education and higher education. It is the chord that lets higher education feed off the school education system.

Higher education – a crisis of their own creation

Higher education is not preparing students to be job-ready, and it is not a guaranteeing return on educational investments. A Harvard Business Review article indicates that around 40% of 25 to 34-year-olds in OECD countries and nearly 50% of 25 to 34-year-olds in America are not outrightly job-ready. College graduates are not as employable as demanded by employers.

Higher education may be the most critical case study of the classical 'innovator's dilemma' – not disrupting its current services and business models to be relevant to students, organisations, and society-at-large in these times of ubiquitous disruption. Who would have believed that campus life and 'taught degrees' would still be relevant in the late 2020s? Worse still, even during the pandemic, 'online education' has been priced at the same tuition-fee levels as on-campus education. Such is the price for not having 'learnt to learn' in school.

What should parents do?

We can only do two things.

First, we must raise our voices on the urgency of higher education reform with a new conviction; schools will not change unless higher education is transformed. And schools must change NOW. Higher education takes the initiative to effect transformation in schools.

For the record, the reforms in higher education that we may seek are simple, and just one reform will trigger an avalanche – opening the 'semester exams' of all higher education institutions to 'private students' (with whatever broad criteria for eligibility). No student should be denied educational qualification for not being part of the 'lecture theatres, or peer group on campus'.

And to be fair to universities/colleges, the award of the degrees to the deserving private students must record the fact of them being 'not regular students.' Choice must be with the students – to learn onsite or offsite. Higher education must truly serve the cause of institutional existence.

Second, we can definitely focus on school years as an end in themselves and not worry about our children's higher education. In fact, we must focus on defining and securing gaols for each grade and each 'subject'. To be true, we must focus on the joy and learning of the child everyday.

Show higher education its place – make it entirely a post-school exploration – and you will experience the joy of parenting and the

most amazing educational progress of your children that is beyond dreams. Stay focused on every moment in the now.

If it helps, also believe that higher education will be liberalised sooner than later. You do not want to regret not anchoring yourself off the higher education bandwagon in time.

The future of school education

Schools are here to stay! They have served us well and will do so in the knowledge society too. Yes, this transition from industrial-era schools to knowledge-era schools is hard, but not unexpected. Schools will be in step with the times. Higher education revolution will do the trick (higher education has to transform for its own reasons). Schools will almost mutate to versions we would not even call schools in today's times. In the 2030s, the last school on earth would be offering the same quality of education as the 'best' everywhere else, and that is more important of the two mutative manifestations – 'reach of quality' and the 'what is quality'.

The global pandemic

The pandemic has put the pedal to the metal. There is no point in discussing the lost two decades – 2000–2020 – of the potential transformation of the school education system. Ranking and ratings aside, national school systems in the developed world have also struggled to register minor quality gains.

The pandemic hurtfully magnified all the secrets of the school education system; the change is finally set to roll now. For instance, within a few weeks of the wave of online teaching, the stress caused by the school education system is out in the open. Online teaching, which can hardly be called education, has significantly disrupted families' routines and added new social dimensions to cope with for all members.

A few drivers of transformational change in school education are decisively evident to all stakeholders (uniformly across the globe) –

1. Teaching does not work well at home. Blended learning is not about teachers also 'teaching at home; learning is a highly personal and social experience. Teachers and teaching cannot be a mode of education outside classrooms – there are several concomitants means in a classroom situation.
2. Schools worldwide, the priciest ones included, have chosen to use free tech platforms for teaching. These platforms only

multiply the lacunae of classroom teaching. For instance, a few talented children will hijack the class by repeatedly being the first to offer the one 'correct answer'. This may make other children wish to walk away from their computers for the entire period. Of course, forcing children to sit in physical classrooms under similar conditions of 'teaching to a few' is worse in itself, but that is how schools have always been.

3. Teacher's video (live or otherwise) is just one input to learn. Teaching and learning are very contextual, and for a child, the resources at home are far more enriched than in the classrooms. The online platform is an amazing opportunity to share pre-teaching and post-teaching texts, assessments, activities, feedback, and in-session individual feedback on class participation. Post teaching auto-generated assessment of teaching effectiveness is an equally important and unique opportunity in online teaching.

4. Parents must be acknowledged and supported as co-teachers. A role that is already being played by parents, but by default and without any support from schools, teachers, and governments. The current set of books, worksheets, teacher's 'lectures', manipulatives, etc. are not parent-friendly; we need a new genre of books written for parents, manipulatives that are easily found at home, new-genre of formatives that parents can evaluate and remedy if required, etc.

5. Online 'teaching' time must be community time. Most schools and teachers completely missed the socio- emotional dimensions of schools and classrooms; online teaching remained focused on 'syllabus completion'.

6. Flipped learning is the mode, not blended learning – Home must be the seat of another learning opportunity and context, independent of school education; after all, family, neighbourhood, and community are the real seat of learning. The role of classrooms and homes may be inverted – reading, discussion, and preliminary experiences must be achieved at

home and 'revision', remedial, advanced exercises, etc., to be a part of classroom experiences.

7. Online teaching and learning are here to stay. When children learn at home, access to the school community, processes, resources, and teacher's attention is valuable; it should be available 365 days, including every school day and holiday, in a way that is best convenient to all stakeholders.

8. What is most important is trust and respect between the parents and school – Schools must recognize the symbiotic relationship between themselves and parents and derive the benefit in bringing school transformation on a faster track.

We must re-emphasise the gross inappropriateness of textbooks and exercises as learning aids for students, and supporting parents' resources is starkly evident. The current textbooks are only right for rote content, methods, and curated experiments – but this is no news for school leaders and administrators. They all know the near-impossibility of the task of getting a Grade X science teacher to effectively teach Grade VI science (using the Grade VI science textbook) within a couple of academic sessions (if at all). Yet, the same textbooks are presented to students and parents to help themselves. Indeed, school education textbooks should not be used for a day more.

In essence, it is staring us in the face, 'teacher and teaching quality' fall way short of children's 'level'. Within weeks of online teaching, children resisted online lessons; given a choice, many of them would not wish to be in their classrooms. In this context, the socialisation logic is overstated as the reason for children loving schools. For sensitively-parented children, socialisation in schools is often too much of a contrast and highly stressful.

These lessons from the pandemic-led online teaching also take us to the doorsteps of the solution to the most vexed transformational school initiative – shift from teacher-centric education to student-centric education. As of date, student-centricity and agency in school education are far from ideal!

Parent-centric education is the missing link in securing student agency. It is the mandatory intermediate step in the transition from teacher-centric to student-centric schools. Schools cannot transform unless parents are equipped to step in as co-teachers. Parent-centricity has to be a formal step, the next step in the transition.

On the contrary, the school education system is only belittling the role of parents (by design or by default); there is no effort towards significantly empowering them. What makes parent-centric education the all-important critical success factor is that parents will have to continue their hands-on support to children at home. In the same way, teachers will have to do at school in a student-centric education system.

Obviously, institutionally empowering parents is nearly impossible for a system that is massively lagging behind in training its teachers. We need a tool for empowerment that is simple, smart, and catalytic; just one support to parents that have a high probability of eventual success. In our experiences with schools, 'Family edition' of textbooks has worked wonders. School textbooks need a new version – written for the parents; texts and resources that parents can read and get the 'whole story', rooted in everyday living and using everyday things as manipulatives and for experiments.
We have had significant success with our 'Family edition' textbooks in mathematics.

What will student-centric schools look like?

Our name for comprehensively student-centric schools is 'Living schools'. One remarkable distinction of children's minds and worldview is the absence of definitive compartments of all sorts. Expectedly, living schools are boundary-less in multiple ways – no classroom boundaries for access to teachers, the company of section- mates, flipped learning; no grade boundaries for level of subjects, access to subjects, peer partnership; no school boundaries for access to resources, the definition of learning spaces and access to mentors, etc. Living schools handhold every student to follow

their developmental goals, including becoming entrepreneurs, professionals (such as musicians, designers, tutors, certain kinds of community workers) and employees.

Living schools are born out of a fine-tuned family-school-community-organisations continuum. Relevantly, effective flipped learning is a pre-requisite for a school to develop as a Living school; successful implementation and sustenance of parent-centric education is the pre-requisite for flipped learning.

As for the evolutionary journey of a school to be a Living school, the following two milestones are sine qua non –

1. *Becoming Effective schools* – Achieving academic success for all students (schools were created as society's academic education arm. Thus, academic success is what makes them 'effective')

2. *Becoming Successful schools* – Achieving whole-person development for all students (a new imperative for schools, away from their academic-rooted origin); being an effective school is a pre-requisite to being a successful school.

A successful school will have to galvanise its local community as well as global community and organisations (the world is connected), to open up as Living schools.

Of course, no school is, as yet, an effective school. In 175 years of K-12, no school has achieved academic success for all its students.

Not empowering and enlisting parents in school education is the primary reason for this gross under-achievement of schools.

Academic success in school is every child's birthright! There is no 'rocket science' involved in school academics or in organising quality teaching. Schools aren't harnessing all the resources to ensure quality.

Living schools will emerge in the widest hues, and that is indeed the best news! There is no template for Living schools. Such schools will always be responding, evolving, and ensuring that every student is as good as the one who's best in academics and has skills of all kinds!

One last defence of schools

A school of 2000 students on roll may only be compared in management complexity to a business organisation with over 10,000 employees! More likely, even that may not be a fair comparison. A school of 2000 students would have around 1,500 families leading to nearly 3,000 individual parents, thus, a total of over 5000 people, including staff.

However, a business organisation has the tremendous advantage of having the right and means of ensuring that all the 10,000 employees are closely aligned to the business goals, policies, processes, culture, and practices. A school of 2000 students has to live with 5000 independent individuals (no two spouses think and believe similarly on education), there is no question of alignment of the kind in businesses.

Many of us know the complexity of managing a 10,000 + strong organisation. Managing a school is indeed very intricate, elaborate, and complicated.

Expectedly, the only way schools can manage this complexity is extreme uniformity in how teachers, students, parents, and staff act and behave, standard operating procedure for everything, a high degree of facelessness. For example, the best teacher in a school would not be granted special privileges in designing lesson plans, assessments, evaluation, and reporting.

To top it all, school leadership is unlike business leadership, not formally trained in management principles, cultural transformation, business process reengineering, change management, or technology application design. Frankly, transforming schools is fraught with a high risk of failure and chaos. Indeed, we need to quickly develop a formal science of school management and transformation.

A reminder to parents

The stress of support to children would be NIL if you just "meet the children where they are", at all times. Don't become their teacher – they are always ahead of the students, teaching in a hurry and

not being attentive to the students' learning. Your children are the learners, and you are their co-learner; you have no business pulling them by getting ahead of them. They will surprise you with faster and faster learning as they get better at learning to learn; that's the nature of learning. The pace and scope of learning are always theirs; wait to be surprised.

Alternative is the new mainstream

The K-12 model of institutionalised education of children is the most impactful idea humanity has embraced in modern history. It is the world's first truly universal product – differences in the K-12 system across countries exist (significantly in curricula, assessments, teacher behaviours, and even desired outcomes), but they can all be genuinely categorised as marginal. We do not know any system better than the institution standardised and popularised by the US around mid-19th century. K-12's penetration is a milestone that no corporate has ever even dreamt of attempting; never has anyone imagined a product equally meaningful for all of humanity.

The K-12 model homogenised the educational development of children and realised the industrial revolution across the world. The homogenisation of the educational model did have one major unqualified benefit – a rapid rise in the number of educated people if we take 'schooling = education'. But is there ever any unmitigated bliss? Families, communities, and nations have now left it to the schools to raise their children to be worthy humans ('= education'). No wonder our challenges are mounting with respect to the inability of schools to adapt to the changes and possible challenges that come with time.

K-12 is a uniquely self-perpetuating institution, a peerless 'distinction' – the most well-schooled families also need schools for educating their children. For example, a child who is a fifth-generation learner (whose grandparent's grandparents were also formally schooled) would also need school books, teachers, and school assessments to be educated. Worse, a Grade X science teacher would have a hard time teaching Grade VI science, a school headmaster cannot even train Grade I math teachers in teaching math, and a Grade VI science teacher cannot teach Grade III math. The fact is, teachers teach the textbooks, not the subjects. At the end of it all, it's as if school years are wiped off from all our memories.

K-12 is the best packaged product ever; we keep trying to fix it but never think of replacing it for all its glaring deficits. After all,

it has worked for us – the 'educated us', a minority of humanity. In the process, the K-12 system has globally failed the big majority of children who enter its portals. Over-emphasis on examination systems and the absence of any other assessment parameter has led to dubbing the 'failed' children as 'slow learners', 'poor', and what not. Fortunately (and expectedly), some of them keep turning out to be the biggest game-changers for humanity.

The current K-12, the mainstream, has positioned itself next only to God. It can do no wrong. Teachers, headmasters, administrators, books, assessments, etc., are never at fault – the onus of education squarely lies on the children and their families, always! This has remained a game of blame and bluff for 200 years, but it doesn't hold water – research provides enough evidence to prove that ineffective teachers (and pedagogy) are more responsible for not having been able to reach every student and for their lack of skill and mastery of the content. K-12 is the only social institution that is beyond any kind of social scrutiny, and it is also an exceptionally poor showcase of the application of ICTs.

Unsurprisingly, the alternatives to mainstream K-12 started to emerge in the 20th century. Some of the pioneers of alternative schools are: Summerhill school, UK; Waldorf schools; Mirambika, India: Green School, Bali; and Reggio Emilia, Italy. Of course, burgeoning homeschooling is now one of the more common alternatives. However, the institutionalisation of these alternatives is almost non-existent. There are just a handful of formal alternative schools globally. Unfortunately, these standalone models could not scale up as their alumni hadn't proved to be remarkable influencers for others to emulate the experiments. Of course, alternative models can only come through transformational vision and innovation, not as a reaction to the flaws in the current K-12 system.

Pandemic and K-12

The global pandemic has paused and derailed the mainstream K-12 system. The most natural response to the situation is the mainstreaming of the 'alternate' rather than the resurrection of the current mainstream.

That the 'alternate is the new mainstream' is inevitable because –
1. Every child must succeed in K-12 education, which is impossible in the current K-12. Knowledge society demands much higher academic development for ALL, unlike in the industrial society.
2. Essentially (good) quality K-12 is all that's required – higher education and lifelong learning don't need 'classroom/academic campuses'; apprenticeship is back in vogue.
3. Rich multi-disciplinary education is the essence; new possibilities are all on the boundaries of domains of knowledge. K-12 has comprehensively failed in securing breadth as well as the depth of knowledge and skills.
4. Each child is unique – 14-year, age-bound, grade-wise textbook-focused K-12 is antithesis to everything we know about humans; new gradeless 'textbooks' are set to revolutionise K-12 education; performance data should guide the student towards the learning path, rather than to punish them.
5. Parents need education, not children – there is NOTHING in K-10 content that EVERY parent can't transact with equal aplomb; K-12 biggest failure is in ensuring that the best (formally) educated parents are no good for their children (generations, after generations).

EXAMPLES OF SUCCESSFUL PARENTING

"Everyone has the potential to be extraordinary. As long as you have a soul and free will, you can be anything, do anything, choose anything."

Cassandra Clare

We would like to leave you with examples of parents who have successfully contributed to their child's development. In this section, we share the success stories of some notable personalities from across the world and the kind of parenting they experienced. It would be very interesting to read the monumental role their parents played in their success and receive guidance on what you can do for your child.

The making of five of the most eminent people in modern history is offered next.

Ludwig van Beethoven – the prodigy

German composer and pianist Ludwig van Beethoven (1770–1827) is acknowledged as one of the giants of classical music. Beethoven, who exhibited extraordinary talent for music from an early age, was, tutored in violin and piano by his father. A court musician himself, his father was a very hard taskmaster.

Childhood – Beethoven's ability to 'see' music came only after years of intensive practice and horrific abuse. Consider this description of Beethoven's childhood –
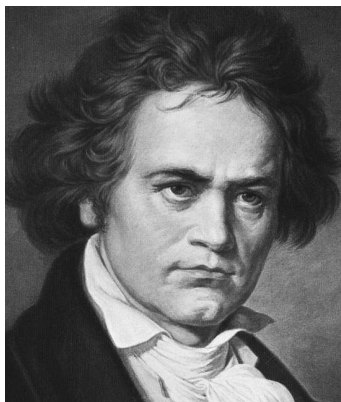
> *"Neighbours of the Beethovens recall seeing a small boy "standing in front of the clavier and weeping". He was so short that he had to climb a footstool to reach the keys. If he hesitated, his father would beat him. When he was allowed off, it was only to have a violin thrust into his hands, or musical theory drummed into his head. There were few days when he was not flogged or locked up in the cellar. Johann, his father, also deprived him of sleep, waking him at midnight for more hours of practice."*

> *Edmund Morris*

He was four years at the time. Nearly twenty years later, Beethoven emerged in the music world as an extraordinary performer and a promising composer.

Working with famous composers – In 1792, famous Austrian composer Joseph Haydn took Beethoven as his student. However, Beethoven's unorthodox musical ideas didn't sit well with his old teacher, so the lessons were discontinued. Later, Beethoven had the chance to study with other distinguished teachers, but because he was developing his style, thanks to his singular genius, he did not gain much from instructional teaching.

Illness – Beethoven became deaf in his late 20s, a severe handicap, given his profession. Nevertheless, he managed to rise above his illness and limitations, producing music that is revered to this day. He started to converse with people by writing music. He eventually developed the ability to see music, writing the third to eighth symphonies when he was almost completely deaf.

Beethoven expresses his devotion to his art and laments the sacrifices his art demanded from his personal life in the following quote: *"You must not be a human being, not for your-self, but only for others: for you there is no longer any happiness except within yourself, in your art."*
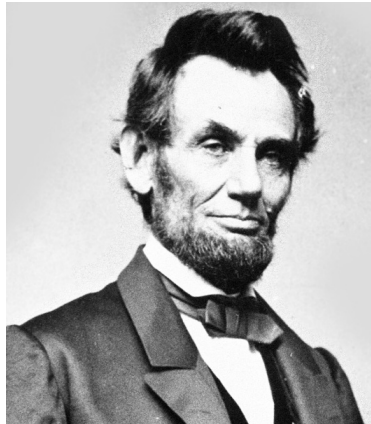Beethoven is an example of a 'cultivated prodigy'.

"Music is like a dream. One that I cannot hear."

Beethoven

Abraham Lincoln – the great emancipator

Abraham Lincoln (1809–1865) was the 16th president of the United States of America. He preserved the Union during the Civil War and brought about the emancipation of slaves.

Childhood – Lincoln was born in Hodgenville, Kentucky. His cousin gave him initial lessons in spelling, reading, and writing before he started going to school in the winter of 1815. Lincoln always arrived before time, even though it was a 4-mile walk. A room, a teacher, and students of all ages is what constituted his school. It was referred to as a 'blab school' because students read out loud.

His formal education consisted of perhaps a total of 18 months of 'schooling' as he attended school only intermittently – when he

was 6, 7, 11, 13, and 15 years of age. He studied at night because he had chores to do during the afternoon, and he studied in front of the fireplace, the only source of light.

He did his arithmetic on a fire shovel and wrote in dust or snow as the paper was hard to get. When he got tired of doing arithmetic, he would write poems.

Love for reading – Lincoln received most of his education from the books he read. He was fascinated by books. He would spend every spare minute reading, carrying his books wherever he went. Even when he was out ploughing the fields, he stole moments to read whenever the horses stopped to rest. As books were a precious resource during his time, he would be willing to walk miles to get a book that he would proceed to read again and again. Lincoln read everything he could get his hands on and once told his family, *"My best friend is the man who will give me a book I haven't read."*

Abraham Lincoln's childhood was deprived, but the determined young boy who loved to read went on to become one of the greatest presidents of all time. He is the exemplification of how voracious reading can more than compensate for poor formal education.

> *"A capacity, and taste, for reading gives access to whatever has already been discovered by others. It is the key, or one of the keys, to the already solved problems. And not only so, it gives a relish, and facility, for successfully pursuing the [yet] unsolved ones."*
>
> *Abraham Lincoln*

Helen Adams Keller – the 'twice parented'

Helen Keller (1880–1968) was an American activist and educator who overcame the adversity of being blind and deaf to become one of 20th century's leading humanitarians, authors, political activists, and lecturers, besides co-founding the ACLU (American Civil Liberties Union).

Keller wrote 12 published books and several articles. She became the first deaf-blind person to earn a Bachelor of Arts degree. 27th June, her birthday, is commemorated as Helen Keller Day in Pennsylvania, US.

Childhood – Helen Keller was only 19 months old when she contracted an illness that left her both deaf and blind. At that time, she was somewhat able to communicate with Martha Washington, the 6-year-old daughter of the family cook who understood her signs, by the age of 7, Keller had made more than 60 signs to communicate with her family.

In 1886, Keller's mother, inspired by an account in Charles Dickens' 'American Notes' of the successful education of Laura Bridgman, another deaf-blind woman, dispatched young Helen and her father to seek out an ENT specialist – Dr Chisholm – for advice. Chisholm referred the Kellers to inventor Alexander Graham Bell, who was working with deaf children at that time. Bell advised them to contact the Perkins Institute for the Blind, the school where Bridgman had been educated. Michael Anagnos, the school's director, asked a former student, 20-year-old Anne Sullivan, herself visually impaired, to become Hellen's instructor. It was the beginning of a 49-year-long relationship.

Education – Anne Sullivan arrived at the Kellers' house in March 1887 and immediately began teaching Helen to communicate by spelling words into her hand, beginning with 'd-o-l-l' for the doll that she had brought Keller as a present. Keller was frustrated, at

first, because she did not understand that every object had a word uniquely identifying it. Keller's big breakthrough in communication came the next month when she realised that the motions her teacher was making on the palm of her hand while running cool water over her other hand, symbolised the idea of 'water'; she then nearly exhausted Sullivan demanding the names of all the other familiar objects in her world.

In 1890, Keller began speech classes at the Horace Mann School for the Deaf in Boston. She would toil for 25 years to learn to speak so that others could understand her.

In 1904, at the age of 24, Keller graduated from Radcliffe College, becoming the first deaf and blind person to earn a Bachelor of Arts degree.

Helen Keller is an example of what good parenting and intrinsic motivation can achieve.

"The highest result of education is tolerance."

Helen Keller

Chandrasekhara Venkata Raman – the dreamer

Sir Chandrasekhara Venkata Raman (1888–1970) is one of the most

prominent Indian scientists in history. He was the first Indian to win the Nobel Prize in science for his illustrious 1930 discovery, commonly known as the 'Raman Effect'.

Early Childhood Influence – As his father was a mathematics and physics lecturer, Raman had access to an excellent collection of books on physics, mathematics and philosophy at home. His father was also a great lover of music and was skilled at playing the violin.
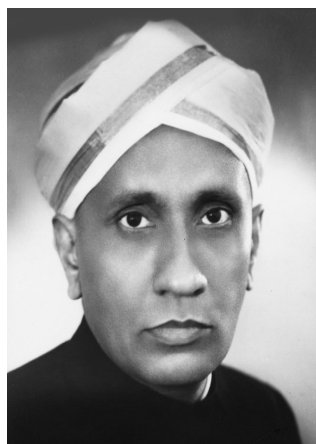
Education – Raman completed his high school at the age of 11, intermediate college at 13, passed his BA exam, and was a gold

medallist in physics and English at 15, and he passed his MA exam at 19. He was self-taught in science. Surprised by his achievements at that young age, his professors at the Presidency College, Madras, exempted him from attending science classes. They found him to be so knowledgeable that they recognised that Raman did not need any classroom instructions.

Career — Raman cleared the Civil Services Examination and was appointed the Deputy Accountant General in 1907. Despite having a career in civil services, he did not lose his love for scientific research. He would devote his evenings to the laboratory of the Indian Association for Cultivation of Sciences (IACS). Such was his passion that in 1917 he resigned from the services to become the Professor of Physics at Calcutta University.

On a sea voyage to Europe in 1921, Raman noticed the striking blue colour of the glaciers and the Mediterranean. He became so eager to discover the reason for the blue colour that upon returning to India, he began performing many experiments on the scattering of light from water and transparent blocks of ice. Based on the results, he put forth the scientific explanation for the blue colour of seawater and the sky.

On 28 February 1928, Raman headed the experiments at the IACS on the scattering of light that led to the discovery of what now is called the 'Raman effect'. This ground-breaking work earned him the 1930 Nobel Prize for Physics.

The 'Raman Effect' is considered integral in analysing the molecular structure of chemical compounds. In the decade since its discovery, the structures of about 2000 compounds were studied.

Raman was a man of boundless curiosity and a lively sense of humour. His spirit of inquiry and devotion to science laid the foundations for scientific research in India. He was honoured as a scientist and won affection as a teacher.

"Look at the resplendent colours on the soap bubbles! Why is the sea blue? What makes diamond glitter? Ask the right questions, and nature will open the doors to her secrets."

"The pages of Euclid are like the opening bars of the music of the Grand Opera of Nature's great drama. So, to say, they lift the veil and show to our vision a glimpse of a vast world of natural knowledge awaiting study."

C V Raman

Steve Jobs – the original thinker

Steve Jobs (1955–2011) was the co-founder of Apple Inc. Under Jobs' guidance, the company pioneered a series of revolutionary technologies, including the iPhone and iPad.

Early childhood – Steve Jobs was adopted by a couple, Paul and Clara Jobs. Paul worked as a mechanic and a carpenter and taught his son electronics in the garage and also how to work with hands. He would take apart radios and televisions and demonstrate how to rebuild them. As a result, Steve became interested in and developed a habit of tinkering with technology. Clara was an accountant who taught him to read before he went to school.

Schooling – Jobs' childhood was full of angst over formal schooling. He frequently played pranks on others. Though school officials recommended that he skip two grades on account of his test scores, his parents elected for him to skip only one grade.

Higher Education – After graduating from high school in 1972, Jobs enrolled at an expensive college. He dropped out of college after 6 months, spending the next 18 months dropping in on creative classes, including a calligraphy course. In the commencement address he gave at Stanford in 2005, Jobs said, *"If I had never dropped*

in on that single calligraphy course in college, the Mac would have never had multiple typefaces or proportionally spaced fonts."

Steve Jobs changed the computer industry by introducing the world to Apple's Macintosh, and he changed the way we hear music and the music industry by introducing the world to Apple's iPod.

Steve has been described as a brilliant, abrasive, self-centred, temperamental perfectionist. He was a technologist and a businessman, but he was also an artist and designer. Although he was difficult to work for, most employees were extremely loyal to him because he knew how to motivate them.

Steve is a glowing example of what original thinkers are made of (and why one cannot be nurtured to become an original thinker). This is just to show that individual propensities also count. Brilliance cannot be traced to specific formula; parents cannot play God for their children and try to 'fix' things.

> *"…if you ask who are the customers of education, the customers of education are the society at large, the employers who hire people, things like that. But ultimately, I think the customers are the parents. Not even the students but the parents. The problem that we have in this country is that the customers went away. The customers stopped paying attention to their schools, for the most part."*

> *"I know from my own education that if I hadn't encountered two or three individuals that spent extra time with me, I'm sure I would have been in jail."*

> *Steve Jobs*

EPILOGUE

Interestingly, through this book, we did not talk about parents! We held the position that parents are parents. This epilogue talks about the mind of 21st century parents.

You are right, the education of children is much more than just school education, and that is one aspect of our lives that is getting convoluted by the day. Parenting was never more demanding than it is today. Yet, parenting never had as much potential to impact children and society as it is today – qualitatively and quantitatively. All parents could be as wise as the wisest of all.

Welcome to the epilogue, one of the most integral parts of the book – connecting the dots of your family's future and this moment. It presents the fail-safe plan of action towards being the parent, person and professional, that changes your world as the world changes.

The world has already conspired to make it all predisposed for you and your family. The extraordinary pandemic has permanently changed everything about education. The suddenness, global expanse, and impetus have rendered us distraught; also, technology presents an exceptional opportunity to guarantee equity in the quality of education for every family.

Appositely, the place to begin is from YOU – the only possible hero, since schools will move at their own pace. And how can one begin all alone? Work on crafting a new belief system – the most potent driver of change in the world, always. What follows is a brief exploration of a ten-point belief system that will set you on the well-trodden path of 'hero' parents –

1. *Brace up for a life* – Our children do not see a career in the same way as we do, or some of us did before we had amassed a 'satisfactory' level of wealth and are thinking of taking it a bit easy now. Quality of life is an important aspect for our children; living is important for them.

   Career is not at the vertex of their life! To be fair, the personal, social, and professional spaces are more seamlessly inter-mixing for our children (for example, the office culture is an important part of their life).

   We, parents, need to understand and certainly appreciate our children's different orientations towards living and career.

2. *Respect the Next Decade Value* – Net Present Value (NPV) rightly reflects the real value in all domains except in the education of children. Our collective failure to acknowledge 'Next Decade Value' in education is one key reason for the current global crisis in education. Education prepares children for life and profession beyond at least a decade – a child midway through school in 2020 will only start his/her career around 2035!

   Think about some of the corporate leaders today, such as Microsoft, Google, Amazon, Intel, Apple, or Samsung, and think again if you really know what these companies would be like in 2025, let alone 2035. We don't know if we will have our current jobs in 2025, but as parents, we know that our children will have similar jobs in 2035!

   We cannot fathom the next generation's 'great careers'. Fortunately, no one can, anywhere in the world! We must stop pushing children into today's 'hot' careers. Respect and accept the fuzziness – and that is the first step.

3. *Stability of self, not the world* – The psychological 'stability' of work – lifelong profession, singular domain, or predominant geography for work and home – has been important to us. Let us prepare our children to spot and pursue newer opportunities in their routine.

   Entrepreneurship (or intrapreneurial setting or smaller organizations) will be the professional norm. The majority of

our children will turn entrepreneurs or 'driven intrapreneurs' once during their work life; for instance, one could shift from IT to hospitality to entrepreneurship.

Are we preparing our children to assert themselves tenaciously? In the face of relentless change, the only stable thing would be our core – who we are.

4. *A billion careers in the 'new economy'* – The ever growing pie of the service industry in our economy is the secular trend of the 21st century given the ample modification the service industry obtains together with the 'generative' power of the Internet. All service sector businesses have a high 'personalisation' component in each element of the entire value chain. The Internet takes the same to the next level where the customer can self-personalise and self-seek interventions.

    Implications for our children? Let a million flowers bloom in your garden. Every unique experience, idea, or dream of your child is a potential career opportunity in a truly global village of life and work. The Internet affords critical mass to every committed business because it taps on the (increasingly) efficient marketplace of 7 billion people worldwide.

    We have no reason to worry about our children's careers only because we failed to understand the 'new economy' businesses of 2000-2020! Yet, we have a role to play – ask the right questions about life and work.

    We should stop worrying about our children's career! Whether we like it or not, our match-making role is on the wane in the personal and professional lives of our children (for example, many children now opt for a break in higher studies for doing BPO jobs).

    We must equip and skill our children to 'play career ball by ball', to not go about career moves and choices reflexively, based on taught or learnt rules of the past.

5. *Work-life balance* – Career and living will be synonymous. This is nothing less than revolutionary and perhaps the most spectacular burial to the industrial society. It also marks the end of a cycle of evolution for us.

However, flexibility around work-life will remain limited, and any movement towards balance will primarily seek changes in non-work life (family being the central unit of focus).

Indeed, we must develop and prepare our children for the 'family in the decades after the next'. As luck would have it, the pandemic has already taught us something about it.

6. *Be contemporary in investments* – Most of our parents invested in land, building, gold, savings account, shares, and the likes. But, how are we investing today? With rare exceptions, we continue to invest for our children in the old way – the industrial society way – in physical assets (such as land, building, stocks, gold).

It is time we do justice to our education – 'pay back' to the next generation what we got out of education – we are what we are, individually and as a nation, because of a good education. We must start investing in the knowledge society way – primarily in intellectual assets of our children (such as global citizenship, being multi-lingual, multi-culturalism, broader professional associations, wide reading, 'serious interests', broader academic accomplishments, role-model ethics, integrity, diligence).

Most importantly, make all these investments during the school years of the children! It is sub-optimal to save for investments in under-graduation, however costly it might be. Life-long learning is founded on the quality of education during the school years.

7. *The verdict is out on interest* – 'Backward integration' was our response to missing passion. Those amongst us who made it 'bigger and happier' made their profession their interest; for example, a whole generation of Indians are 'happily married to software'. But it was an expensive proposition in the long run – physically and emotionally draining, mentally numbing and spiritually uninspiring, ultimately leading to burnouts.

Can we make it easier for our children? Yes, the way forward is linking interest to the profession. Cultivate a set of interests among children (we cannot cultivate the one interest of their life), support children to develop one or some of them to

professional levels, and sustain support to children in their 20s.

Importantly, the diversity of interests is rooted in the time, attention, and money investments in the 8–13 years development space of children.

8. *Professionalism* – When we started off, educational qualification by itself made a professional out of us. However, it would not be true for our children. Educational qualification will only be a necessary condition (at times, not even that), but in no way will it be sufficient to be a professional.

'Personal qualifications' such as attitude, integrity, communication skills, professional ethics, personal grooming – will constitute the necessary condition to be a professional. It will also weigh more than qualifications; personal attributes will almost entirely drive the way to the top.

Be a role model for your children to build strong foundation of ethics, diligence, integrity, communication, team play, and leadership!

9. *Stretching it too far* – For the vast majority amongst us, our parents had a fairly hands-off approach in our education. And their expectations from our education were primarily economic in nature, reflecting their mostly 'marginal middle-class' financial position.

Many of us have imported the same two threads of our parents' approach towards education, just repackaged them to suit our professional goals –

➤ Our hands-off approach that follows 'let them enjoy their childhood'.

➤ Our money-centric professional choices that do not leave much of an option for children.

However, we may have stretched our parents' context. In the current and the foreseeable times –

➤ A far more hands-on approach is needed, when children are aged between 8 to 13 years, to help the children handle the information and community overload that they are exposed to by default.

➤ The general rise in wealth and quality of life implies the primary focus of education should be to identify and nurture a 'globally-competitive' persona; money being a default gain.

10. *Beyond the Next-Generation* – Thanks to the increasing life expectancy, we all are likely to live to see our grandchildren well beyond their years in school and college.

Whether we like it or not, we will see a strong reflection of our parenting ways on the parenthood of our children. In a good majority, the latter will just be an improvised version of the parenting they received from us. And only in the rest of the instances, expect them to significantly deviate from the parenting they received.

Indeed, if we care about the parenting afforded to our grandchildren, it serves us right to be proud and diligent parents today.

Going forward

The book is riveted around the following 10 commandments of good parenting to create 'education friendly homes.'

In 1 word	Pride[1]
In 2 words	Trust children
In 3 words	Cultivate reading homes
In 4 words	Disciplined nurturance of multi-intelligences
In 5 words	Education = 'LEARNING to learn' + Values
In 6 words	Invest upfront before their 18th birthday!
In 7 words	Prepare children for 'success' in their 30s!
In 8 words	Help define their dream and retro-fit career options
In 9 words	Five years of headache vs. fifty years of heartache!
In 10 words	Leave 'a few things' for God to fix for children!

[1]Accord high pride of place to demands of parenting

Happy parenting, joyous life!

INDEX

The book is best to read cover to cover. Thus, the usual Index offered in books is not advisable, much like fictional books.

There are significant foundational transactions before we can start to appreciate how we learn, individually and collectively.

Education of children is still a 'rocket science', and beyond.

ACKNOWLEDGEMENT

This book is a product of a peerless personal and professional journey.

We have worked with thousands of teachers, school leaders, and parents, as well as a few hundreds of school administrators, including government officials (countless children have been part of this journey, but they are almost always a product of their adult environment). A few hundred homeschooling families have also been part of our education of education.

However, without any judgement of it all, we discovered all about education, and the (real) content of all the subjects, through the incessant denials and objections to our inputs (considered thoughts and actions) for showing the possibility that every child can learn and excel when educators are focused on 'How' (to make learning happen), and not 'What' (to learn in any subject) and leave 'What' to children.

Expectedly and sincerely, we acknowledge the contribution of all the thousands of educators and parents we have worked with over the past decade and more. Each act of resistance was a bead in the string of learning we had on education itself. Yet, all children, till Grade VIII, were exceptionally excited by our work, and we owe this book to them.

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