

Learning Steps - A Learning community

Volume 2

Schooling the Kid

Step-1

Driving through the memory lane, when I scratch the surface of the neurons embedded in the cerebrum, I revisit a scene – (Pardon me, for being a little personal) – The city called Madurai – a reasonably large house – a large number of family members had gathered – the house had a festive look – the musicians who play on the pipe were parading their auditory skills – I was nearly six years old – taken to a nearby barber to have the head half shaven – given a celestial bath – new dresses given – a set of rituals performed - the procession starts towards a nearby school – a municipal school – sitting on the lap of a headmaster in early forties I was asked to write the first alphabets on a plate filled with rice – wow! It was a great function to admit a child in the school – a celebration for vidhyaramba – the beginning of education! It matters not, to which religion you belonged to, which community you were born, the beginning of learning was a great occasion in yester years. Parents, everywhere, looked for the day with a sense of religiosity, as an auspicious occasion.

Contrast that to this day – A staffer comes to meet me in my chamber seeking leave for a day. He explains that he has to go and sleep outside the school that night so that he can be one of the first few to get the application for seeking admission of the child in a school. The long queues, the policemen regulating - parents from all walks of life, engineers, doctors, chartered accountants, professors, corporate executives sharing a night on the platform – competing with each other for just an application for admission of their wards in the school. (I understand that there are touts available in a few places who can give a proxy appearance for a fixed charge to get you the application forms!) – A nightmarish experience.

In a world where the education of children is being considered increasingly as an investment – not only for the future of the child, but for the future of the parents too, in a world where the success of learning is considered as the ability to jump over the fence of cutting edge standards, one starts wondering – whether it is an apt time to redefine what education means.

- Does schooling lead to education?
- What is the objective of schooling?
- What are the processes involved in effective schooling?
- When the child is fit enough for schooling?
- Does schooling alone lead to education?
- What is the changing scenario in schooling?

Add to this certain other issue: Which is the first school? Who is the first teacher? What is the role of parents and home in empowering the learning process? How does awareness lead to cognition and emotional experiences? How does informal learning affect formal learning? How learning occurs? How are attitudes and aptitudes developed? What are the challenges to the established theories of learning? What is the emerging role of parents and teachers in info-flooded society?

There are several questions to which we need answers. For some, we have answers but pretend not knowing them. For some we really don't know the answers and we don't intend to seek answers. For some it is possible to find answers, but we are pre-occupied with other priorities and hence we can afford to marginalize the questions. For some, we are waiting for someone else to find the answers and implement them, so that we can tune ourselves based on the success rate of implementation.

In the background of all these questions, I see an innocent child sitting and pondering – what is going to happen to me? Am I part of the routine consisting of – a biological birth, existence and death? What is that I am expected to learn and for what purpose? Why people are interested in educating me and what are their expectations? Which is the right place for me to learn what I want to and what others want from me?

Friends, Schooling The Kid series will try to find some answers based on various research work done both at the national and the international level – some school experiences gathered from classrooms worldwide - contextualizing them to the present and future needs of the community, human kind and the universe. It will be indeed a great opportunity for all of us – me and you – to put across our views, share our experiences, debate our concerns – which will sensitize us to take actions towards the ends where we want things to go or possibly where all of us want to go – a journey to unravel the unfathomed oceans of knowledge!

In order to have effective discussions – I suggest that you post your views (whenever you feel the need) to my email id: bala1947@gmail.com and give me the privilege of editing and moderating the communications so that the discussion is crisp and focused – a platform where everyone will have opportunity to be present and benefited.

Have a great Learning experience!

G. Balasubramanian

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Step-2

Is womb the first school?

We are not unfamiliar with certain stories which spoke of the foetus in the womb learning from the environment. One of the greatest Indian classics Mahabharat has the following anecdote:

Krishna was explaining to Arjuna about certain strategies adopted in the Warfield. Arjuna's wife Subhadra who was pregnant was sitting nearby and listening carefully to the description of Krishna. Krishna was describing the formation of Chakravyuha, an important method of fighting with the enemies. However, during the process of description, she slept over. The foetus who was listening carefully to the words of Krishna could not listen fully. Later in life, when Abhimanyu, son of Arjuna was in the battlefield, he remembered the words of Krishna on how to form Chakravyuha and could make it easily. But he did not remember how to come out of it and got killed.

Then we have the anecdote of Prahalada.

Prahalada was the son of Hiranyakashpu, the demon king who became arrogant with the powers that was vested on him by the Lords of the Heaven. When Prahalada was in the womb of his mother, he had the continuous opportunity of listening to the songs of Narada, singing the laurels of Narayana, the Lord. Later when the child was delivered by Hiranyakashpu's wife, the child was so devoted to the name and fame of Lord Narayana that he could challenge his father and become the source of his death.

William J. Larsen writes in his book "Essentials of Human Embryology" (1998):

"The extreme speed with which both our understanding of human biology and our clinical practices are advancing affects a new category of patient: the unborn foetus."

The following is the excerpt of Jan G.Nijhuis in the journal Fetal Behaviour: Developmental and Perinatal Aspects (1992):

It has often been asserted that human foetuses are exposed to environmental stimuli that have a lasting effect. The effects thereof are often negative: medication, viral infections or a

malnourished mother might have a harmful effect on the foetus. But environmental stimuli might also have positive influences, as anecdotes tell. For example, during her pregnancy, King Heinrich IV of Germany's mother had a musician come every morning to play in close proximity to her. At that time, people believed that the foetus could hear the music and that music would have an influence on the person's later character by preventing him or her from becoming bad humoured. According to historians, this worked for Heinrich IV: he was good humoured all his life.

He continues to substantiate the idea of learning at the fetal stage through the following words:

Some mothers say that they listened to Mozart or Beethoven during their pregnancies in order to give their child a good start in this world. But what should one think of these stories? Does an unborn child store environmental stimuli? In other words, do humans learn while they are still in the womb? Lately the anecdotal stories on these issues have been supplemented with scientific data. It has, for example, been scientifically proven that a foetus starts to hear sounds in the 20th week of pregnancy and is able to react to sounds by the 28th week at the latest. In addition, habituation studies have found that the foetus is not only able to hear tones, but can also memorise them.

The above revelations should make all educationists to reconsider some of the established views on learning and should revisit the concepts in the light of newer understandings of the human biology.

Let us hear more from the researchers in the following issues.

Keep reading!

G. Balasubramanian

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Remembering the Smell

Does the foetus respond to the stimuli provided externally? Does it have any long-term effect on the foetus? Do they register the stimuli in their brain and recognize it at a later stage? What are the different types of stimuli to which the foetus responds? Extensive research has been carried out worldwide to understand the fetal behaviour.

Here is the extract of certain experiments conducted by schaal et al-

Schaal et al wanted to know whether similar prenatal processes might operate in the formation of the first selective responses to odours in human infants. In order to test this, they recruited 24 pregnant women from Alsace, a region whose local cuisine makes extensive use of anise. Thanks to behavioural observations, it has been known since the 1930s that anise is readily perceived by newborns. The pregnant women were asked about their habitual consumption of anise-flavoured food or drinks and thereby separated into a group of 12 anise-consuming (AC) and 12 non-anise-consuming (nAC) mothers. In the last two gestational weeks (i.e. 15 days before the expected term), women of the anise-consuming group were offered anise-flavoured sweets, cookies and syrup. They could eat as much of these as they wanted, but without any additional change to their regular eating habits. During this time, the women were asked to fill out a detailed record of their daily eating habits and the kind and amount of the consumed anise-flavoured foodstuffs. By decoding these records and using the quantitative information provided by the fabricants on the flavour content of the different foodstuffs, the researchers could precisely evaluate the amount of anise flavour consumed by each mother. Due to the fact that most women delivered before the expected term of gestation, the women of the anise-consuming group consumed anise flavour on an average of 5.6 ± 3.5 days preceding delivery. Postnatally, the women did not ingest any anise-flavoured food. In the control group, no anise was consumed before and after birth.

The new-borns were tested within the first eight hours after birth (before they had had any ingestive experience) and on day 4 (about 3.5 hours after they had last been fed). Cotton swabs were impregnated with anise flavour diluted in paraffin oil, or with only the solvent, paraffin oil, and held under the infants' noses for 10 seconds each in a systematically balanced order. The babies' behavioural reactions were videotaped. During the second test

(on day 4), a two-choice paradigm was carried out, i.e. both stimuli were presented at the same time and the researchers examined the different reactions to the two stimuli.

The video tapes were analysed by an independent researcher according to three variables (a) negative facial reactions (brow lowering, nose wrinkling, upper lip raising, lip corner depressing, etc.), (b) ‘mouthing’ (sucking, licking, munching, chewing) and (c) head turning. In this way the 10 seconds of stimulus presentation and the 10 seconds that followed were analysed.

On the day of birth, a significant effect could be observed in all three variables: the babies who had already smelled anise in the womb showed more positive reactions in mouthing and more negative reactions towards the control stimulus. As regards head turning, babies in the control group showed no difference in their reaction to the anise and the control stimuli, while babies of the anise-consuming group turned their head significantly more often towards the anise stimulus. Taken together, these results show that infants born to anise-consuming mothers evinced a stable preference for the anise odour, whereas those born to non anise-consuming mothers displayed aversion or neutral responses.

Some of the research findings on the stimuli-response behaviours both at the prenatal and post natal stages have a significant impact on our understanding of learning and consequent behavioural patterns.

Let us try to look into more evidences in the future issues.

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Foetus and responses to smell

Several experiments conducted on pregnant women world over have brought out some significant revelations about how the foetus respond to odour and are able to recognize them for short intervals and on long-term basis. This raises certain important questions about the **memory formation, retention of memory and factors that enrich and stabilize the memory. Let us look into the experiments:**

Babies are able to learn and remember while still in the womb, according to a study.

Doctors in the Netherlands used sound to determine if an unborn baby could react, respond to and recognize a specific noise. They found that while a foetus moved when they first heard the sound, they later became used to it and did not react.

According to the doctors, this showed the foetuses were able to remember the sound and "learn" it was harmless.

The doctors carried out a study on 25 unborn babies between 37 and 40 weeks old. They applied an acoustic sound to the womb and directed it above the unborn babies' leg. Each of the foetuses reacted.

They determined whether the unborn baby had "learnt" not to react to the sound if their body no longer moved, after four consecutive sounds. They applied consecutive sounds at three different intervals; initially, 10 minutes later and 24 hours later.

'Became used to sound'

Six of the foetuses were excluded from the study because of irregular movements in response to the sound.

The remaining babies all "became used to" or habituated to the sound and did not react soon after it was initially applied.

They stopped reacting to the sound more quickly when it was reapplied after 10 minutes and similarly 24 hours later.

Dr Cathelijne van Heteren from University Hospital Maastricht said the study showed foetuses had both short and long-term memories.

"Compared with the initial habituation test, foetuses not only habituated more rapidly 10 minutes later but also after 24 hours.

"We therefore conclude that foetuses have a short-term memory of at least 10 minutes and a long-term memory of at least 24 hours."

Says David Chamberlain, an expert on foetal studies in his book "Foetal learning: Ground Zero for parenting and society.":

The true foundations of civilization and chaos, health and illness of both individuals and societies are laid during the days we spend in the wombs of our mothers. What happens there eventually determines what happens in the world. Womb ecology becomes world ecology.

During the 266 days of human gestation we receive our operating equipment for life: we become embodied, take form. This includes the physical structures of body and brain, our emotional settings, and our mental patterns, habits, and momentum. These become the "default settings" or "templates" for living. They are difficult—in some ways impossible—to change after birth. We do not have the luxury of going back to do this construction over again.

"Womb ecology becomes world ecology" – Don't you think it is quite a sensitive statement over which, we educators need to contemplate?

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Does the foetus recognize the voices?

It is amazing to note that prenatals are not only able to listen but are able to recognize the difference in the voices. Several of the research studies have shown that the foetus in the mother's womb being sensitive to the changes in the voices. Further they are able to recognize the voice of the mother even during her pregnancy. Specialists in the field do believe that this has a strong impact on the language learning competency of the newborn. Possibly the need for learning through the mother tongue at the formative years of life assumes a great significance in this context. Let us now see what the research studies indicate.

Dr. Barbara Kisilevsky, a Queen's University professor of nursing along with a team of psychologists at Queen's and obstetricians in Hangzhou, China, found that foetuses are capable of learning in the womb and can remember and recognize their mother's voice before they are even born. Their research findings are published in the international journal *Psychological Science*.

While previous research on infant development has demonstrated that newborns prefer to listen to their own mother's voice to that of a female stranger and will even change their behaviour to elicit their mother's voice, Dr. Kisilevsky's research proves that this 'preference/recognition' begins before birth.

"This is an extremely exciting finding that provides evidence of sustained attention, memory and learning by the foetus," says Dr Kisilevsky. "The foetuses learn about their mother's voice in the womb and then prefer it after birth.

Our findings provide evidence that in-utero experience has an impact on newborn/infant behaviour, and development and that voice recognition may play a role in mother-infant attachment."

The findings also suggest that the foundation for speech perception and language acquisition are laid before birth, says Dr. Kisilevsky. Therefore, the precocious language processing abilities observed in newborns and young infants may not be due to a hardwired speech-processing module in the brain as has been assumed, but instead stems from the interaction of the foetus with its environment.

Along with researchers at Zhejiang University, China, Dr. Kisilevsky tested 60 fetuses at term. Thirty fetuses were played a two-minute audiotape of their own mother reading a poem and 30 fetuses were played the voice of a female stranger reading the poem. The researchers found that the fetuses responded to their own mother's voice with heart-rate acceleration and to the stranger's voice with a heart-rate deceleration. The responses lasted during the two-minute tape as well as for at least two minutes after the offset of the voices.

"These results tell us that the fetuses heard and responded to both voices and that there was sustained attention to both voices," notes Dr. Kisilevsky.

Some of these research findings have a serious impact on our present understanding of how learning occurs and what are the inputs that facilitate learning. Two issues which seem to be bothering my mind in this context.

1. A few decades before the children stayed with the family and the parents upto a period of 5 or 6 years where the emotional bondage between the child and the family/parents was built up. Today we are in a world where the child is being looked after by a governess or a crèche just a few days after the birth. In the light of above observations about early learning paradigms, I strongly feel the importance of the family in shaping the mind and attitudes of the child. But have we gone too far presently that we would not be able to restore the earlier scenario, or will it be possible to reverse the process?
2. There is an increasing feeling amongst the parents that the children could be outsourced to an external agency for intellectual and emotional development. Spending a sizable amount for such outsourcing seems to make them happy. Is it necessary for the schools presently to educate the parents on their vital role for bringing up the children? If so what should be done and how should it be done?

Think it over!

G. Balasubramanian

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Learning aggressive behaviour at the foetal stage

Many gynecologists used to advise the pregnant women about the need for maintaining a positive environment where they used to live. The need for having nutritious food, reading books which deal with healthy emotions, avoiding quarrels and bitterness and leading a life full of joy was always emphasized. Research also indicates that mental aggression and violent behaviour at the later stage of life are consequent to certain exposures during the prenatal growth.

David chamberlain, the renowned prenatal psychologist observes the following based on his research:

Much of the violent crime in society can be traced back to a brain that was undernourished, mal-constructed, and is functioning poorly. Most obvious brain problems found in these criminals is in the prefrontal cortex where perceptions, decisions and judgments are made. Violent criminals are not working with a full set of brains and the mistakes they make are predictable. Another powerful factor favoring later criminal behavior is a failure of attachment and bonding between parents and babies. As many as 15% of US children may enter life without such an attachment, feel no intimate, safe, and loving connection with anyone, and have no concern for other people's feelings, posing a high risk of criminal violence.

Prenates "know" a lot of things they are not expected to know. They know if they are wanted or unwanted. Unwanted newborns have 2.4 times the risk of dying in the first 28 days after birth. Planned babies, compared to unplanned babies, show superior cognitive processing when only 3 months old. Babies learn violence in the womb when their mothers are injured and abused. About ten percent of newborns first experience violence in the course of neonatal intensive care and other medical procedures.

The above observations do indicate the need for nutrition and health care of pregnant women in the best interest of the society. It is important that the health education curriculum of the schools include vital inputs on the above to make a healthier and less aggressive society for the future.

David Chamberlain further observes:

Traumatic events in neonatal intensive care are indelibly imprinted in memory and intrude on adult life, often in the form of fear. Edward, who was born prematurely and entered the

NICU at 29 weeks, learned to fear the sound and sight of adhesive tape. He learned this from the experience of having sections of his skin accidentally pulled off during removal of monitor pads. When he was a young man, he still feared adhesive tape.

Babies can learn their mother's emotional state. Experiments in Australia revealed that unborn babies were participating in the emotional upset of their mothers watching a disturbing 20-minute segment of a Hollywood movie. When briefly re-exposed to this film up to three months after birth, they still showed recognition of the earlier experience. Studies of a thousand babies whose mothers had experienced various degrees of depression during pregnancy themselves displayed depression at birth and in proportion to the depression scores of their mothers.

An important message of these diverse findings is that memory and learning seem to be a natural part of being human, including the first nine months in the womb and the years of infancy, defined as the time before speech. Perhaps the biggest surprise is that life in the womb is extremely active and interactive and the womb is, in fact, a classroom.

Ensuring a positive, conducive, cool, calm and relaxed climate at the prenatal stage appears extremely important for a healthy and holistic growth of a citizen in the offing! I feel there is a need for a proactive campaign in educating the future mothers of the country, which many of the voluntary organizations working in the field of women's welfare can take up. (I don't exempt the male folks to understand the implications of the above and enable an appropriate environment in their own interests!)

I don't think I need to add anything further to the explicit message the research has given. One of our readers wondered whether we would be going towards "Prenatal Schooling." Who knows – the way knowledge dynamics has impacted our thought processes, it might lead to a venture of such nature (especially in a globally marketing world). All things which were questioned – why, are now being questioned again only with a subtle difference – Why Not?

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Acoustics, emotions and foetus

"Research shows that you begin learning in the womb and go right on learning until the moment you pass on. Your brain has a capacity for learning that is virtually limitless, which makes every human a potential genius." - Michael J. Gelb

Based on his extensive research on babies during their gestational period, Dr. David Chamberlain observes:

"Babies are learning their native language before birth. This is made possible by the development of hearing as early as 16 weeks gestational age. A mother's voice reaches the uterus with very little distortion as the sound waves pass directly through her body. Acoustic spectroscopy, which makes possible elaborately detailed portraits of sound similar to fingerprints, has documented prenatal learning of the mother tongue. By 27 weeks of gestation, the cry of a baby already contains some of the speech features, rhythms, and voice characteristics of its mother. Newborn reactions to language are based on the sounds heard in utero: French babies prefer to look at persons speaking French while Russian babies prefer to watch people speaking Russian.

Unexpected evidence for prenatal learning and memory comes from studies of taste and olfaction). Until recently, olfaction was thought to require air, hence, learning of odors was not considered possible before birth. Current understanding, however, recognizes the complex interaction of chemosensory receptors in utero. Many chemical compounds, including those from the mother's diet, pass through the placenta and reach the baby in utero while others flow in the capillaries of the nasal mucosa. By breathing and swallowing amniotic fluid, a baby becomes familiar with the mother's diet, including things like garlic. Even before post-nasal exposure to breast milk, babies already know and prefer their own mother's milk. Abrupt changes in her diet during the perinatal period can confuse babies and upset breastfeeding.

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The research findings we have seen so far is proof enough to the fact that learning happens even at the prenatal stage. It is necessary that parents, especially pregnant mothers are given adequate exposure to the process of prenatal learning in order to prepare their children to face the world. A friend of mine has just sent me the information how a lawyer cum journalist started exposing the foetus to the auditory inputs of classical Carnatic music when she was bearing a child and how the child was able to identify the ragas much early in life.

Possibly some of genetic learning can be attributed to the fact that the foetus at the prenatal stage stays in continuous touch with the environment in which the parents live and hence learn in context.

In the next few issues we will also see how the trauma, pain of labour have an impact on the development process of the kids and how the shades of the pain are carried to the latter part of life.

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Impact of parental attitudes on the foetus

Sarah Belle Dougherty writes in her article “Mysteries of Prenatal consciousness” about the attitude of parents on the child during the period of pregnancy. The following observations of Dr. Dougherty give a deep insight into some of the prenatal experiences.

“Even more intriguing is evidence of the impact of the mother's and father's attitudes and feelings on their unborn child. Based on the findings of many other researchers as well as his own experience as a psychoanalyst, Dr. Verny presents evidence that the attitude of the mother toward the pregnancy and the child, as well as toward her partner, have a profound effect on the psychological development of the child and on the birth experience. The mother by her patterns of feeling and behavior is the chief source of the stimuli which shape the foetus. Communication between mother and her unborn child takes place in several ways: physically (through hormones, for example), in behavior (the child's kicking, the mother's job and environmental situation), and sympathetically or intuitively (through love, ambivalence, dreams). One of the main means for communication of maternal attitudes and feelings is the neurohormones the mother releases, which increase when she is under stress. These substances cross the placenta as easily as nutrients, alcohol, and other drugs do. In moderation these hormones cause physiological reactions in the child which stimulate his neural and psychological systems beneficially, but in excess they can affect the developing body adversely. Because of the child's resilience, it is only extreme and, generally, long-lasting stress that leaves marked negative effects, not isolated thoughts or incidents. Moreover, the mother's love, acceptance, and positive thoughts for the unborn child act as a very strong protection, so he will continue to thrive even if her own situation is troubled. But if his needs for affection and attention are not met, "his spirit and often his body, too, begin wilting"”

The birth experience itself is influential: very detailed birth memories can be retrieved, and the more traumatic the birth experience, the higher the correlation with physiological and psychological problems, including serious disorders such as schizophrenia and psychosis. Again, the mother's attitude has been demonstrated to be the most important factor in determining the character of the birth. The vital factors in predicting the ease and speed of labor are the mother's attitudes toward motherhood, her relations to her own mother, and the presence of habitual worries, fears, and anxieties going beyond normal apprehension. Along with these, women trapped in an unsatisfying relationship fall into the high-risk category.

Many problems associated with birth trauma can be prevented or reduced by increased understanding and sensitivity on the part of health professionals and by the parents' choice of who delivers the baby and of a humane and comfortable birth method and location.

Those prenatal experiences carry over after birth is beyond dispute, as case histories illustrate. In one, a man troubled with severe anxiety attacks accompanied by hot flushes was regressed by hypnosis to the prenatal period and revealed that the underlying trauma had occurred in the seventh month of pregnancy. His mother subsequently admitted trying to abort him in the seventh month by taking hot baths. Such "lost" memories form the record of prenatal consciousness and they can influence us powerfully all our lives."

Extending this view further, Hartman, David & others write in the Journal of Heart centered therapies:

"Psychopathology in childhood and adolescence is predicted by certain prenatal and perinatal influences. For example, major depression in the child is predicted by maternal emotional problems during the pregnancy; anxiety in the child is predicted by a maternal history of miscarriage and stillbirth; and disruptive behavior disorder in the child is predicted by poor maternal emotional health during the pregnancy and birth complications; substance use disorder by the child is predicted by maternal use of substances during the pregnancy" (Allen et al., 1998). "Depressed maternal emotional health during the pregnancy also predicts conduct disorder and attention deficit disorder in the child" (Downey & Coyne, 1990).

Well, all the above findings seem to suggest that how much the awareness and education about prenatal care of children is important. Are we as a concerned society, meaningfully addressing these issues so that we have a future generation which is physically, and emotionally healthy?

Can we take some steps in this direction?

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Stepping into the world

The last eight issues have brought home more than adequately the participation of the foetus in the process of learning and how it becomes almost a preparatory stage for further learning. It also emphasizes the need for extensive care of the growth process of the foetus so that the mental and emotional health of the child in the making is holistic and sound. It also focuses on the emotional attitude of the mother and the type of relationship parents should have at the formative periods of the child which has an impact on the emotional state of the child as well as in the formation of attitudes. They have all been verified been scientific and medical evidences and testified and supported by renowned psychologists. The objective of focusing on the above issues as a part of this series is to make all educators understand that the process of schooling does not start exclusively from the time the child is brought to the precincts of the school, but it is much earlier.

Writes Dr. David Chamberlain, a specialist in birth psychology

“Is a baby a conscious and real person? To me it is no longer appropriate to speculate. It is too late to speculate when so much is known. The range of evidence now available in the form of knowledge of the fetal sensory system, observations of fetal behavior in the womb, and experimental proof of learning and memory--all of this evidence--amply verifies what some mothers and fathers have sensed from time immemorial, that a baby is a real person. The baby is real in having a sense of self which can be seen in creative efforts to adjust to or influence its environment. Babies show self-regulation (as in restricting swallowing and breathing), self-defense (as in retreating from invasive needles and strong light), self-assertion, combat with a needle, or striking out at a bothersome twin!

Babies are like us in having clearly manifested feelings in their reactions to assaults, injuries, irritations, or medically inflicted pain. They smile, cry, and kick in protest, manifest fear, anger, grief, pleasure, or displeasure in ways which seem entirely appropriate in relation to their circumstances. Babies are cognitive beings, thinking their own thoughts, dreaming their own dreams, learning from their own experiences, and remembering their own experiences.

Because of all these capabilities, we know babies remember at a very deep level of consciousness their primal journey, the way they entered this world.”

It is also said that the arrival of the foetus into this beautiful world is something remarkable and has to be handled with care. While the labor is indeed a painful activity, very often the associated fear, psychological depressions, traumas have an impact on the nascent child.

Apart from the trauma and experiences associated with the birth, there are several other occasions when the just born is exposed to a variety of unwanted experiences which have a direct impact on their life patterns in the future years. We would be examining in the future issues some of the experiments and research work carried out on the first few months of the life of a baby. All these have a great and significant meaning both to the parents and the teachers in schooling the kid.

Dr. Terry M. Levy Psychologist writes in his article “Effects of Attachment Trauma”

“Severe childhood trauma is correlated with a wide variety of symptoms which include difficulties with sense of self, modulating affect and relating to others. Attachment trauma often produces symptoms in the following DSM IV categories: Disruptive Behavior Disorders (Oppositional Defiant Disorder, Conduct Disorder, Attention-Deficit Hyperactivity Disorder). Separation Anxiety Disorder, Reactive Attachment Disorder of Infancy and Early Childhood, Post-Traumatic Stress Disorder and Depression. Dissociative and characterological symptoms may emerge as the child develops. Behavioral acting-out includes aggression, destruction of property, lying, stealing and self-destructive behaviors. Extreme oppositional and defiant behaviors are common.”

Well, so much within a small brain? And a teacher is expected to deal with this wonderful phenomenon to shape a human being! How do we face this challenge?

Let’s learn more.

G. Balasubramanian

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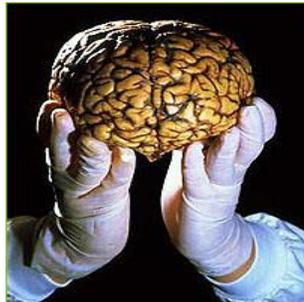
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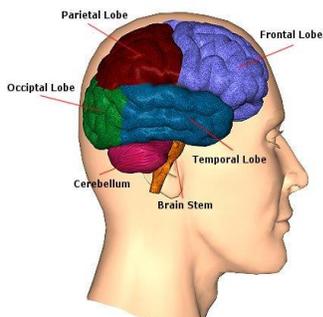
Basics of the brain

Having known so much about the prenatal happenings, it is equally important to know the structure, functions and development of the brain. This physiological entity to me is the basic hardware of the system. A million supercomputers possibly cannot do certain things which our brain does. It is important to understand, cultivate, nourish and nurture the brain (through several indirect inputs) and also taking care of its physiological safety.

While I don't intend to deal with the external structure of the brain (because it is available anywhere in a text or on the internet) we will deal only with such issues which have a direct impact on the process of learning.



1. The largest and most developed portion of the brain is called the cerebrum.
2. the cerebrum is made up of billions of nerve cells (neurons) and is divided into two hemispheres
3. The right side of the cerebrum controls the left side of the body and vice versa.
4. It is the cerebrum which is responsible for higher order thinking and decision-making functions.
5. The cerebrum is made up four primary areas called lobes. They are occipital lobe, prefrontal lobe, parietal lobe and temporal lobe.
6. Each lobe has a specified function and all lobes related to each other and interdependent.



Functions:

1. Occipital lobe: vision and related activities
2. Prefrontal lobe: judgment, creativity, problem solving and planning
3. Parietal lobe: higher sensory functions and language processing
4. temporal lobe: hearing, memory, meaning and language

The above functions are certain specific functions that happen in the identified part of the brain, but most functions are inter-related, and we would see in the next few issues how they coordinate with each other.

G. Balasubramanian

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Multitasking of the brain

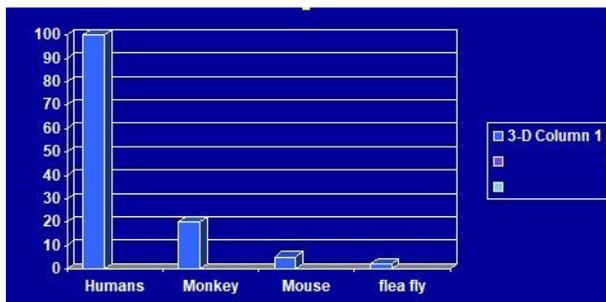
The recent exercise on identifying the wonders of the world really did not impress me. If you see the architecture of the brain and the way it functions (though a lot about it is yet to be studied and unraveled) no wonders of the world can match its architecture and sensitivities. Some interesting studies on brain have revealed the following information:

- **The brain processes only one thing at a time**
- **Even if it is a fraction of a millisecond, the second task is processed subsequently**
- **Brain adopts task switching technique. (Hal Paschler, University of California calls it a time-sharing operation)**
- **Mental rehearsing of priorities appears to be important**
- **For example, while driving, the priority to save a pedestrian appears more important than other observations**
- **Immersing in the immediate task appears important; however, the brain takes much less time in preparing itself to the subsequent task.**
- **With focus on the single task, the blood flow to the concerned Area (called area 10) increases.**
- **Once a task becomes a routine, most related activities are surrendered to the interior parts of the prefrontal cortex working on visual and motor control**
- **The active part of the prefrontal cortex takes charge of the new conceptual framework of the new task**

What a wonderful gift to the humankind!

How does this human brain compare to those of other species?

Look at the following graph.



It is a comparison between those of human, monkey, mouse and fly! The above comparison is on the total number of nerve cells each kind has. It clearly shows the huge amount of nerve cells the humankind has for effective use. But it is also understood that the number of nerve cells we really use is very insignificant to what could really be used. (Please do remember that this has a serious implication on our process of learning, styles of learning, quality and quantity of learning; we will examine the relevant issues in the future pages of the series.)

In terms of its composition, the following picture shows its material content: The three important components of which it is made are water 78% Fat 10% and Protein 8%

A lot of studies have been done on the structure and functions of the brain. As educators, it is important for us to know how this functions (because we are often used to accuse our young children in the classroom: “You don’t use your brain” or “You, a brainless chap!”- possibly we can avoid such messages once we understand the way the brain functions)

The nerve cells in the human brains (neurons) are responsible for all its activities. We will examine the way neurons function in the future issues. But how many neurons are there in our brain? Can you imagine?

- **There are over a trillion neurons in the brain.**
- **If you want to count the number of neurons in the brain, it is claimed that it would take a couple of thousand years.**
- **It is also said that the number of neurons in the brain (of every human being) is more than the number of people on the planet earth!**
- **About 70% percent of human nervous systems is in the brain**
- **Neurons are connected to each other by nearly one million miles of nerve fibers**

Friends, don’t you think that all the above revelations indicate which what kind of an instrument we are dealing with in our classrooms. Can we try to give it a little more care, a little more love and a little more respect to it – and don’t you think our children in the classroom will enjoy that care?

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Understanding neurons

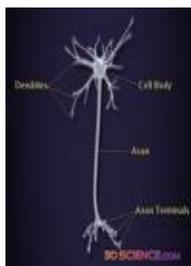
We have already learnt that the brain has a near trillion neurons. They are formed at the development stage of the foetus. How does a neuron look like?



The above picture shows the image of a healthy neuron. Though we have about a trillion neurons it is said we start losing them day almost everyday from the day of our birth and we lose a few million cells everyday. Neurologists also say that they are also produced continuously in our brains. It may be a good idea if you could visit some websites which deal exclusively with the way neurons are produced and managed in the brain. It indeed makes an interesting reading and an insight into the way how nature ordains itself.

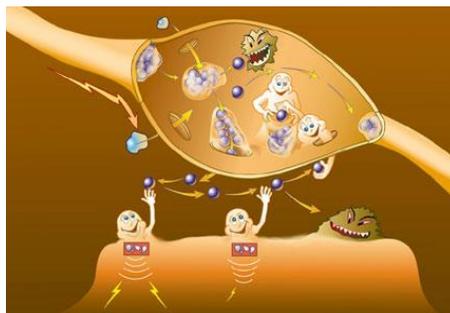
Well, how is a neuron connected to other parts of the brain? What work it does? Research by neurologists shows that: -

- A normal functioning neuron continuously fires, integrates and generates information across microscopic gaps called synapses linking one cell to another.
- No neuron is an endpoint in itself
- They act as conduit of information



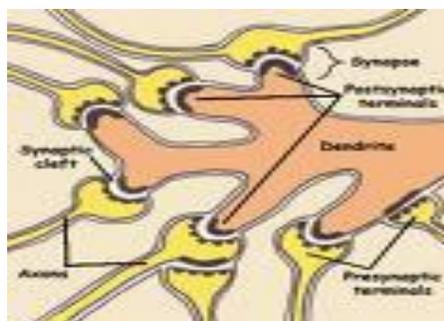
With whom do the neurons communicate?

- Generally, neurons stay put in their place
- They extend their arms to the axons
- Axons “talk” (communicate) to dendrites and dendrites “talk” (communicate) to neurons
- When axons of a cell body meet a dendrite from a neighboring cell the “Aha-a” experience, the learning takes place



What do axons do?

- To connect itself with thousands of other cells axons go on sub-dividing themselves.
- They branch out
- They conduct information
- They transport chemical substances
- The thicker the axon the faster it conducts the information and electricity



We will follow the line of communication in the next issue along with the tools used for such a communication.

(Those who find time available will do well to refer to some books on brain and learning- as our focus here is just to understand how learning takes place and how we can enable the learners to empower themselves over a period of time, which we call schooling!)

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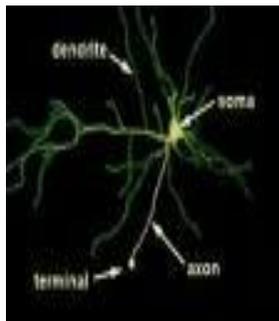
How does learning take place?

Psychologists claim that Brain is basically designed to meet the needs of survival rather than for instructions. They also claim that the primordial feeling associated with the development of this organ is fear. This would rather explain many of the behavioural patterns of the human beings at a later stage. However, it is important for us to know how the learning takes place in the brain. Is something written over there? Is something recorded over there? If it is recorded what is the mechanism by which it gets recorded? How are we in a position to recall many things even after decades? How is memory caused? Why do we remember things selectively? What is intelligence and what are the different types of intelligences? How do they operate? When does a brain become creative? Is the process of creativity natural or can we cause creativity in the minds of the learners? There are a million questions that would galore. For a few we may have answers. For a few we may not have. Nevertheless, it is important to know how scientists and psychologists' world over have looked at this phenomenon and offered their own interpretations.

Before we launch on a journey towards this El Dorado, let us see some fundamental functions that occur in the brain which will form the foundations of our further learning.

The physiological process associated with learning is explained by Eric Jensen in his book "Brain-based learning". The salient features of the process are:

- **An electrical impulse travels down the axon, where it triggers the release of neurotransmitters into the synaptic gap**
- **In about a microsecond, the chemicals are absorbed at the receptor site on the surface of the receiving dendrite.**



- **The neurotransmitters are released, absorbed and re-absorbed via the thousands of rapid-fire impulses activated each second.**
- **Neurotransmitters influence synaptic reactions and result either in learning impairment, learning enhancement or leave no effect**

In short, it is basically an electro-chemical activity which leads to formation of new neural connections. Every bit of learning is associated with the formation of a new neural set up and hence with each process of learning the physical structure of the brain changes, claim the neuropsychologists.

The general observations of Ben Jensen based on extensive research findings are:

- **Every learning physically changes the brain**
- **Every stimulus alters the electrochemical wiring**
- **The stimulus activates cell-to cell communication**
- **Every challenging stimuli activates a new pathway**
- **If the stimuli is not considered meaningful, it is given less priority and leaves a weak trace**
- **If the brain deems the stimuli as important a memory potential occurs, and long-term potentiation of the input occurs through an electro chemical signaling**

Prof. Petr Kouzmich Anokhin of Moscow University writes based on his six decades of research on the nature of brain cells:

“We can show that each of the ten billion neurons in the human brain has a possibility of connection of one with twenty-eight noughts (0) after it! If a single neuron has this quality of potential, we can hardly imagine what the whole brain can do. What it means is that the total number of possible combinations/permutations in the brain, if written out, would be 1 followed by 10.5 million kilometers of noughts! No human yet exists who can use all the potential of the brain. That is why we don’t accept any pessimistic estimates of the human brain. It is unlimited” (Ref: Tony Burzan- The Mind Map Book)

Following is an extract from the book **“Phantoms of the Brain”** by Dr V.S. Ramachandran and Sandra Blakeslee:

“A piece of your brain the size of a grain of sand would contain one hundred thousand neurons, two million axons, and one billion synapses, all ‘talking to’ each other. Given these figures, it’s been calculated that the number of possible brain states – the number of permutations and combinations of activity that are theoretically possible – exceeds the number of elementary particles in the universe. Given this complexity how do we begin to understand the functions of the brain?”

Well, we often think of overloading the brain of the child. If the brain cannot be overloaded as per the above conclusions on the theoretical possibilities, what are the impediments to learning and pursuit of excellence? Has it anything to do with the way we impart learning? When does a mind maximize its learning? When does it become creative? What are the faculties involved in ushering the creativity? Can all of us learn the same way?

Let us try to find answers in the ensuing issues.

G. Balasubramanian

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More on Learning...

Albert Einstein said, **“It is in fact, nothing short of a miracle that the modern methods of instruction have not entirely strangled the holy curiosity of inquiry.”** Severe allegations are being made against the present system of education from almost all corners of the world. In spite of all such criticisms, the education system is producing unique individual’s world over who have metamorphosed the civilization within a century in a spectacular manner. Discoveries, inventions, achievements, feats, performances of many kinds have led to a spectral display of the human knowledge and skills. All these could be attributed to the way the human brain functions. Though the human brain is not uniquely designed for learning, the process of learning has been happening both overtly and covertly. Millions of interpretations, approaches and philosophies have emerged world over to interpret the process, yet with no finality. Possibly it is because every learning experience is unique as no two individuals are alike.

Says Ben Jensen in his book:

- **A learner arrives not with “a blank slate”**
- **The learner’s brain, even at the pre-school stage has been shaped by home environment, siblings, extended family, playmates, genes, trauma, stress, injuries, violence, culture, rituals etc.,**
- **Even a trivial incident might have an impact on the lifelong learning ability**
- **For example, even a fragile temporal lobe injury might have an impact on emotional processing and memory**

Learning is indeed a complex process. If we think that it is only assimilation of information, it is a mistaken notion. All information, all knowledge comes with related emotions and experience. Hence when the neuron fires the electrochemical fluid into the axons, it sends signals to the entire system of the body. Dr. Anokhin of Moscow university says that a near 70,000 electrochemical impulses pass through the body when a particular emotion is processed in the brain.

But the brain avoids processing the same thing repeatedly. It is said:

- **Once a task becomes a routine, most related activities are surrendered to the interior parts of the prefrontal cortex working on visual and motor control**
- **The active part of the prefrontal cortex takes charge of the new conceptual framework of the new task**

The following words of Ben Jensen are worth pondering over:

“In addition to the experience-based differences in physiology, neural wiring, and biochemical tolerance, every brain is on a different timetable of development. For some brains, the normal time to learn to read is age six. For another, the normal time may be age three. Completely normal development can differ by a spread of three years between learners. (Healy 1987). This finding has dramatic implication for the organization of learning worldwide.”

“All the five-year old should not be expected to perform academically physically and socially at the same level. Statewide curriculums and frameworks which include specific grade-level performance standards are biologically inappropriate.”

This observation has serious repercussions on our present perception of learning both in a classroom and elsewhere. **Stereotyping learning among different minds appears more a punishment to its existence and competence.** But the reality is, most of our schools, most of our parental perceptions, most of our learner expectancies centre around stereotyping.

The question is:

- **Can we come out of this stereotyping? Is it possible?**
- **What are the alternates and how far they are feasible?**
- **Are our formal systems ready for a change?**
- **If they aren't ready for a radical change, when and how can we bring about a change in the thought process of all concerned?**
- **How can we educate parents against stereotyping especially in a competitive and consumerist environment?**

It is not sufficient if we only identify problems, but we must pro-actively seek solutions. While this platform will provoke you to think, if you have any good ideas, suggestions, best practices in the places you are working, please do let us know so that we can learn from each other.

G. Balasubramanian

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How much do we learn?

Very often we find children coming and complaining to us: “I had learnt all those things. I just don’t know how I forgot. I just don’t know why they didn’t come to my mind when I wanted it.” A gentleman was narrating how one day he was struggling to address his wife, because even her name suddenly got out of memory, and he just couldn’t believe how it happened.

We normally believe that once we have gone through a book we have learnt or once we get exposed to something, we remember it. Many students think that once we have attended a class and heard attentively what has been said we have learnt. We also believe that once we are in touch with an idea or even have practiced a skill for some time we have learnt. But sometimes all we claim to have learnt, evaporates into the thin air at a split second. We often wonder why it happens.

Talking of Memory Formation, Ben Jensen says:

“You don’t think that the learner’s brain would have permanently encoded the day’s learning. Unfortunately, it is not quite simple. Sometimes even after the learner is provided with plenty of opportunity for experimentation and interaction, the memory trace is still not strong enough to be activated at test time. Additional factors that contribute to the issue of retrievability include adequate rest, emotional intensity, context, nutrition, quality and quantity of associations, stage of development, learners’ states and prior learning. All of these encoding factors play a vital role in the depth of processing and learning that occurs.”

It is important that our teaching community understands the implication of the above words and treat the learner with respect identifying his competencies, performances and achievements rather than setting stereotype benchmarks and declaring him a failure in one way or the other. There is an urgent need for a paradigm shift in our thinking patterns.

When the baby arrives into this wonderful world, it does carry certain memories of its existence in the mother’s womb. But there are many things which are new and appear a threat to the child. Some of them include light, sound (noise), new exposures, new touches, new feelings and so on.

Lying by the side of the mother enjoying the warmth of love, the baby suddenly hears the sound of a crow from a nearby window. The sound is a stimulus. The baby responds through the movements in the eye. But it neither locates the crow nor does it understand that it is a crow and is in black in colour. In short, the experience has no meaning. Therefore, the construction of a meaning acquires a new significance from the time of the birth.

Mother fondly looks at the baby and points her finger at the crow and makes a sound. The baby relates the sound to the figure. Possibly next time the mother uses the same word, the child relates to the previous experience and the eyeballs are most likely to travel in the direction where it has experienced the sound earlier. Here we enter into a new domain- the domain of perceptions. Learning is also associated with perceptions. The impact of associationism with learning has been widely researched on.

The first few months of the growth and development of the child is very critical to its further learning. Parents have a very significant role to play during this period. (It would be a great idea if the father uses his paternity leave, wherever they are given, at the baby's room in the company of the wife and child rather than attending to sundry works pending for a long time!)

Mother is the first teacher and then the father. The simple acts of the parents are keenly observed by the just born for a number of lessons for the future. The gentleness of their words, the speed of their movements, the style of their work and many other things are the first few lessons on Life skills!

(I presume not much work has been done or published to give an appropriate message to them or even where they are available, they are not sought after because we take most things in a casual manner. May be a separate training centre could be opened on this count by a competent few for the prospective parents and that has a great future!)

It is also claimed that the way a baby is handled in the first few months of its growth broadly defines the emotional intelligence of the person in the offing! The role of amygdale (or the emotional brain) has a significant role to play in the management of emotions. We would see in the next few issues the role of amygdale in influencing learning and how parents need to handle the first few months of the growth process of the kid!

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The early developmental aspects of a baby

Though most of us have been closely associated with the process of development of the baby in his or her early months, we take most things in a very casual manner or we think it is a natural process. We don't give the type of attention they deserve. It is interesting to note that a lot of research has been done in this area world over. Here is an extract from the writings of Dr. Ann Logsdon from her article (**Developmental milestones – your baby's first six months**)

1. ***"Baby's Physical Development - Developmental Milestones in Growth:*** *A typical baby's physical development follows a predictable pattern beginning at the head and moving downward. This is called cephalocaudal development. Typically, the infant's brain and facial structures develop first, along with his ability to control his head and facial movements. As he grows, that development continues downward. A similar pattern of growth and development occurs from the central part of his body and continues outward, toward his arms, hands, and then fingers. This is referred to as proximodistal development.*
2. ***Baby's Movement - Increasing Gross Motor Movement and Control:*** *Gross motor movement is the ability to move and control the larger body muscles such as arms, legs, and trunk muscles. During this period, a baby will turn his head from side to side and will begin loosely controlled kicking and thrusting. As his upper body develops, he will learn to raise himself onto his elbows while resting on his stomach. He will roll his body from one side to the other. The baby's gross muscle control will continue to develop into purposeful, directed movement. Soon he will reach for people and objects and will turn away when he is disinterested or tired of play.*
3. ***Baby's Fine Motor Development - Increasing Fine Motor Movement and Control:*** *Fine motor movements include the smaller muscles that allow him to perform tasks with his hands and feet. Soon he will grasp objects and mouth them. He will enjoy playing with his fingers and toes and will mouth them too! He will spread his toes out in a fan-like shape. This movement is called the Babinski reflex. He will use both hands to pick up and move objects and may begin to show a hand preference. It is important to allow the child to develop naturally. Attempting to switch handedness in your child is not recommended.*

4. **Baby's Sensory Development - Responding to Sounds and Hearing:** *Within the first few weeks after birth, your baby will begin to respond to sounds in his environment by tracking them with his eyes and turning his head toward them. He will show recognition of familiar voices and will show enjoyment when hearing favorite songs. He will show a startle reflex when hearing unexpected, loud noises.*
5. **Baby's Early Speech Development - Increased Purposeful Communication:** *Crying is a baby's first communication. His crying signals his discomfort. As we respond to his crying, the baby learns that his crying brings him what he needs. At a very basic level, he is learning that communication is a two-way process. During this period, the baby will babble and begin making delightful sing-song sounds. He is learning to control his voice and form sounds with his facial muscle structures and tongue. Mouthing objects such as teething toys helps develop muscle coordination and precision that will be needed for later speech development.*
6. **Baby's Social and Emotional Development - Learning to Interact:** *During this period, a baby is beginning to learn to communicate. As he expresses his needs by crying and gesturing. For example, he may turn his head and reach for people and objects. He may turn his head away from foods he does not like. He is learning to express himself in basic ways. He will develop clear signs of pleasure, as in happy babbling and smiles. He will show discomfort and frustration through crying. He will begin to show preferences for certain people and discomfort with others. Through these exchanges, the infant will learn to trust caregivers who meet his needs and mistrust others.*
7. **Ways to Help Your Baby's Development with Learning Activities:** *Provide bright toys specifically designed and approved for infants. Toys that encourage development of hand-eye-coordination and have interesting sounds and textures are a great way to encourage curiosity and exploration. Play games with your baby and sing simple songs. Read colorful children's books to your baby. Babies love and learn from repetition, so don't worry about doing the same things over and over. Repetition, in fact, is the best way for your baby to learn.*
8. **Nurture Your Baby's Social and Emotional Development:** *Always respond to your baby's communication. Speak softly, sing to him, and gently touch and pat him for comfort. To calm a baby, rock him gently, hold him, and speak calming words in soft tones. Respect your baby's need to sleep and turn away from stimulation.*
9. **Encourage Early Language Development:** *Talk to the baby often. Point out familiar objects and tell him the names of the objects. Begin with single words, and later add descriptive words such as color, texture, positions, and possessive words. Read simple books with colorful pictures. Repetition of these words and books will help build the baby's receptive language skills. Receptive language skills are the basis for later speech and communication."*

Can we educate the young mothers on the importance of early attention to the kids so that when they come to the school they can be shaped into a holistic personality?

G. Balasubramanian

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The Ten milestones – A gateway to early childhood

Here is wonderful article displayed in a website Parenting.com under the title “Your baby – 10 milestones for the first 2 years” and posted recently. The article has been authored by Maureen Connolly who is a former Parenting health editor and a mom of three boys. It provides a deep insight into the growth profile in the early childhood. I feel it is worth sharing with all of you.

Every milestone -- from when your baby first holds up her sweet little head to when she speaks her first word -- is thrilling. These moments aren't just exciting and fun; they're also markers that can clue you in to your baby's development. Most parents already know to look for the much-lauded ones, like rolling over and walking. But of the multitude of milestones cited by the American Academy of Pediatrics, some are considered more significant. Here, 10 milestones that are worth paying a little extra attention to during your child's first two years:

1. Eye contact

(between 6 and 8 weeks)

This is one of the first milestones you'll notice, and it's a big deal not just because your baby is finally paying attention to you, and following you with her eyes, but also because it indicates that her neurological growth and ability to communicate are on track. She's demonstrating that her brain is registering a familiar face. In a sense, she's saying, "Hey, I know who you are."

Laura Weber was worried when, at 4 weeks, her infant, Nicole, never met her gaze. "Whenever I tried to make eye contact with her, she'd look over my shoulder instead," says the mom of three from Fredericksburg, Virginia. Fueling her concern was the fact that her first daughter, now 4, hit all the milestones on the early side of "normal." When Weber voiced this at Nicole's checkup, her pediatrician stressed that with milestones, there's a wide range of normal. Indeed, Nicole reached this one at 3 months, the late side of normal. If Nicole hadn't begun to make eye contact after 3 months, her doctor would have suggested vision testing to rule out eye disease. The next step would have been to look for signs of attachment or behavior problems. But experts urge

parents to refrain from jumping to the worst-case conclusion. "You have to be very cautious about assuming your child has a certain condition. It has to be taken in context with so many other things," says Martin Stein, M.D., director of developmental-behavioral pediatrics at Rady Children's Hospital San Diego, California. The more likely reason for no eye contact is that you're looking at the wrong times. "An infant needs to be in a quiet but alert mental state to respond in this way, and most of the time an infant is awake she's tired or hungry," says Dr. Stein. The lesson? Be patient and keep your eyes open.

2. Social smile

This isn't the spontaneous smile that happens when your few-hours-old infant passes gas or your 3-week-old grins at the ceiling. A social smile is reciprocal, meaning your baby smiles in response to someone else's smile. It's a sign that several different parts of the brain are maturing. It says he's able to see short distances, make sense of an object (in this case a smiling face), and produce his own smile in return. A social smile also boosts bonding, since it's one of the first forms of communication between parent and child. If despite your encouraging grins you don't notice a social smile by 3 months, bring it up with your pediatrician; rarely this can signal eye problems or an attachment disorder. Again, being patient and looking for times when your baby is well rested may be all it takes to see him smile.

3. Cooing

During your baby's first several weeks, she communicates mainly by crying. But around 8 weeks, there's a lot of activity that begins to take place in the brain's front temporal lobe (the brain's speech center) that lets your baby coo. "I often half jokingly say that if she has a social smile, can follow movement with her eyes, and can coo, it means she has the ability to go to college, since there's so much that has to be working right in the brain for these things to occur," says Dr. Stein. When she coos, she's using the back of her throat to create vowel sounds like ah-ah-ah and oh-oh-oh. Try talking back, and she may respond with another ah-ah-ah. Don't expect your infant to coo on cue though; she still needs time to master her coo conversation. One of the best things you can do to promote this is to narrate your life: "Mommy is putting on your shoes so we can go to the park. Do you like the park?" Whatever you talk about, your baby just loves the sound of your voice. If she doesn't spontaneously coo by 3 months, check with your doctor, who'll most likely run hearing tests.

4. Babbling

Eventually your baby will move on to babbling. This is different from cooing because it requires using the tongue and the front of the mouth (rather than the throat) to make sounds like nah-nah-nah and bah-bah-bah. Different situations inspire babbling in different babies. For Erin England Acosta's daughter, Samantha, a change of scenery seemed to be all it took. "Samantha hardly made a peep until she started day care at 6 months, and after the first week, she was babbling up a storm," says the Orange, California, mom. Once your baby begins babbling, she'll probably want to try out her newly acquired skill -- a lot. This practice will ultimately bring her to the next

significant milestone at 6 to 8 months: reciprocal babbling. This shows that she's learned she can respond to another person's voice by using her own -- a crucial first step in early language. If you don't hear babbling by the time your baby is 6 months, talk with your pediatrician to discuss your concerns.

5. Reaching and grabbing

"When a child begins to reach and grab, it says she can act intentionally on the world," says Claire Lerner, director of parenting resources for Zero to Three, a national nonprofit organization devoted to promoting healthy development for infants and toddlers. "It shows desire, interest, and curiosity, which are all critical for learning." To encourage reaching and grabbing, get down on the floor with your baby and place a favorite toy just out of reach. The more opportunities you create, the more you engage her senses and entice her to touch, smell, look, and learn about objects.

6. Pulling up to a stand

(9 to 10 months)

One of the first signs that your baby is getting ready to walk is that he begins to pull himself up to a standing position. "This is one of the most important gross motor [large muscle] milestones because it shows the stability and strength of the legs and trunk, which are both necessary for walking," says Dr. Stein. It also shows that your child has the motivation to reach a goal -- to get to that red block sitting on the coffee table, for instance. To help your child learn to pull himself up, it's a good idea to give him lots of time to be unencumbered -- to limit the time he spends in the car seat, stroller, and such. At age 1, Mary Hoskins-Clark's oldest daughter, Katie, now 5, wasn't making any attempts to pull herself up to a stand. "In fact, she wasn't even crawling," says the Westfield, New Jersey, mom of three. So, Katie's pediatrician recommended she be evaluated by an occupational therapist, who concluded there was nothing hindering her ability to crawl or walk. The therapist suggested that Hoskins-Clark simply needed to entice Katie to crawl, pull up to a stand, and walk (instead of carrying her everywhere, which she was prone to do), by encouraging her to come and get her favorite toy or sippy cup. Sure enough, at 14 months, Katie started to crawl. Around 16 months she started to pull up to a stand and was walking at 19½ months.

7. Pincer grasp

There's the crude pincer grasp that occurs around 7 or 8 months, when babies use all of their fingers and their thumb to pick up a spoon or toy. Then, a few months later, they refine the skill and, with either hand, very neatly take their thumb and forefinger to pick up one Cheerio or one piece of a puzzle. "Getting the pincer grasp is one of the biggest keys to independence," says Lerner. "Eventually, a child will use this grasp to do essential things like feed and dress herself and brush her teeth." Encouraging this skill is as simple as letting your child hang out in her highchair with a few cheerios or crackers. What if she isn't catching on? Give it time. Only if

your child isn't using the pincer grasp by 12 months should you get an evaluation to assess her fine motor skills.

8. Gesturing

When your child has eaten all his peas and motions with wide-open hands "all gone," or points to his favorite book on the bookshelf, this is a preverbal form of language. Developmental experts say that gesturing is a clear sign that your child knows what he's thinking, and he's aware that he can communicate that to you as well. If you consistently gesture to your child, he'll probably imitate you eventually by doing it back. As with all of the milestones, give him time to get the hang of it before presuming that he's not on track.

9. First word

The past months of cooing, babbling, pointing, and gesturing have all been steppingstones to the formation of speech. When your daughter sees a ball and pronounces "ba" or "ball," her brain is making the connection between that sound and the object. "This also signals she's beginning to understand that a sound or a word is a symbol for an object," says Lerner. On average, children begin talking around 12 months. By 15 to 18 months, some kids may say between 20 and 50 words, while others may say only 5 to 10. At this age, a child should also understand some words, such as when you ask her to "show me your nose." The best way to promote speech? Spend time talking or singing to your child. Daily reading is another excellent way. If there are no words by 18 months, raise your concerns with your pediatrician, who'll want to rule out hearing problems or screen for developmental delays.

10. Pretend play

If you're looking for a little insight into your own habits, look at your toddler, who will often begin pretending play by imitating you. At 21 months, Carina Kilroy would jump at the chance to "catch up with friends" via the family's cordless phone. "Even though she could speak in sentences, when she picked up our phone she just babbled in nonsensical language, but with inflection. You could tell she was trying to sound just like me," says her Reno, Nevada--based mom, Dana Kilroy. There's also a serious side to pretend play -- it's critical to building your child's symbolic thinking. Ultimately, a baby who lives in a rich learning environment will have lots to smile, coo, and babble about.

I have personally learnt many new inputs from this article. What about you?

G. Balasubramanian

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Mobility in early childhood

Here is yet another article from the website BabyCenter India where the focus is on observing the mobility of the child in his/her early days. Again, such information are indeed useful for updating our knowledge especially the young parents and teachers. The article explains various nuances in handling the initial developmental stages of the child. I feel it is something each parent needs to know.

How it develops

For his first few weeks of life, when you hold your baby upright under the arms, he'll dangle his legs down and push against a hard surface with his feet, almost appearing to walk. But this is just a reflex -- his legs aren't nearly strong enough to hold him up -- and will disappear after two months.

By the time your baby's about five months old, if you let him balance his feet on your thighs, he'll bounce up and down. Bouncing will be a favourite activity over the next couple of months, in fact, as your baby's leg muscles continue to develop while he masters rolling over, sitting, and crawling.

At about eight months your baby will probably start trying to pull himself up to a stand while holding onto furniture. If you prop him up next to the sofa, he'll hang on for dear life. As he gets better at this skill over the next few weeks, he'll start to cruise -- moving around upright while holding onto furniture -- and may be able to let go and stand without support. Once he can do that, he may be able to take steps when held in a walking position and may attempt to pick up a toy from a standing position.

At nine or ten months your baby will begin to work out how to bend his knees and how to sit after standing (which is harder than you might think!).

By 11 months your baby will probably have mastered standing solo, stooping, and squatting. He may even walk while gripping your hand, though he probably won't take his first steps alone for at least a few more weeks. Most children make those early strides on tiptoe with their feet turned outward.

At 13 months, three quarters of toddlers are walking on their own -- albeit unsteadily. If yours still hasn't stopped cruising, it just means walking on his own is going to take a little longer. Some children don't walk until 16 or 17 months or even later.

What's next

After those first magical steps towards independence, children begin to master the finer points of mobility:

- At 14 months, your toddler should be able to stand alone, can probably stoop down and then stand back up again, and might even be working on walking backward.
- By 15 months the average child is pretty good at walking and likes to push and pull toys while he toddles.
- At about 16 months, your child will begin to take an interest in going up and down stairs -- though he probably won't navigate them solo for a few more months.
- Most 18-month-olds are proficient walkers. Many can motor up stairs with help (though they'll still need help getting back down for a few more months) and like to climb all over the furniture. Your toddler may try to kick a ball, though he won't always be successful, and he probably likes to dance if you play music.
- At 25 or 26 months, your child's steps will be more even, and he'll have the hang of the smooth heel-to-toe motion adults use. At this age he'll also be getting better at jumping.
- By the time your child's third birthday rolls around, many of his basic movements will have become second nature. He'll no longer need to focus energy on walking, standing, running, or jumping, though some actions, such as standing on tiptoes or on one foot, might still require concentration and effort.

Your role

As your baby learns to stand, he may need some help working out how to get back down again. If he gets stuck and cries for you, don't just pick him up and plop him down. Instead, show him how to bend his knees so he can sit down without toppling over, and let him give it a try himself.

You can encourage your baby to walk by standing or kneeling in front of him and holding out your hands, by holding both his hands and walking him towards you, or by buying a toddle truck or a similar contraption he can hold onto and push (look for toddle toys that are stable and have a wide base of support). Because baby walkers make it too easy to get around and thus can prevent a child's upper leg muscles from developing correctly, some experts strongly discourage using them. You can also hold off on introducing shoes until your baby is walking around outside or on rough or cold surfaces regularly; going barefoot helps him improve his balance and coordination.

As always, make sure your baby has a soft, safe environment in which to hone his new skills

When to be concerned

As mentioned above, some perfectly normal children don't walk until they're 16 or 17 months old. The important thing is the progression of skills; if your baby was a little late learning to roll over and crawl, chances are he'll need a few extra weeks or months for walking as well -- as long as he keeps learning new things, you don't have to be too concerned. Babies develop skills differently, some more quickly than others, but if yours seems to be lagging behind significantly, bring it up with your doctor. Keep in mind that premature babies may reach this and other milestones later than their peers.”

A friend of mine, on reading this article said: “I wish I had known all these things much earlier.” I feel it is never too late to learn. We can at least pass on this information to several hundreds with whom we come in contact.

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The frontal lobes and emotions

While we have seen in the past few issues some critical inputs required for the holistic development of the child, it is quite important for us to understand certain other physical structures of the brain so that our understanding about learning is meaningful. In making certain statements in these issues, I have largely borrowed the ideas from a wide variety of books, research papers of universities and medical institutions as well as hundreds of websites which deal with all relevant issues. While I intend to be coherent in my presentations to develop the concept in a linear manner to provide a continuity of thought, please do bear with if you feel at any point certain amount of deviation. (again, please remember that those are consequences of varying perceptions)

In trying to make us understand the functions of the brain in a simple manner, Dr V S Ramachandra explains in his book:

“... and so, I begin with a brief survey of the anatomy of the brain, which, for our purposes here, begins at the top of the spinal cord. This region, called the medulla oblongata, connects the spinal cord to the brain and contains clusters of cells or nuclei that control critical functions like blood pressure, heart rate and breathing. The medulla connects to the pons (a kind of bulge), which sends fibers into the cerebellum, a fist sized structure at the back of the brain that helps you carry out coordinated movements. Atop these are the two enormous cerebral hemispheres- the famous walnut-shaped halves of the brain. Each half is divided into four lobes –frontal, temporal, parietal and occipital.”

The frontal lobes have a significant role to play. Let us see some of its vital functions.

What are the Frontal Lobes?

"The frontal lobes are considered our emotional control center and home to our personality. There is no other part of the brain where lesions can cause such a wide variety of symptoms (Kolb & Wishaw, 1990). The frontal lobes are involved in:

- Motor function
- Problem solving,
- Spontaneity,

- Memory,
- Language,
- Initiation,
- Judgment,
- Impulse control...
- Social and sexual behavior.

The frontal lobes are extremely vulnerable to injury due to their location at the front of the cranium, proximity to the sphenoid wing and their large size. MRI studies have shown that the frontal area is the most common region of injury following mild to moderate traumatic brain injury (Levin et al., 1987).

Self-Control

"The frontal lobe, which continues to develop in humans until the age of about 20, also has an important role to play in keeping an individual's behaviour in check. Whenever you use self-control to refrain from lashing out or doing something you should not, the frontal lobe is hard at work. Children often do things they shouldn't because their frontal lobes are underdeveloped. The more work done to thicken the fibers connecting the neurons in this part of the brain, the better the child's ability will be to control their behaviour. The more this area is stimulated, the more these fibers will thicken."

As parents and teachers, we need to understand certain fundamental functions and activities of the brain so that we are able to assess our kids properly and help them to become holistic human beings in later years. I think certain basics of human physiology have to be the core of any learning process.

We will study more about this as we step into the arena of management of emotional intelligences at a later stage. Presently our objective is to understand the complexity of the neural network that controls all the core activities of our life.

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Glial Cells and the genius

A couple of years before when I visited a school for a school function, the principal of the school introduced to me a student of class III along with his father and the principal observed: “Sir, this child is a prodigy”. He continued and said, “He is in class III and drives a Maruti Car so nicely”. I had the shock of my life! I have heard of musical prodigies, mathematical prodigies but not a Maruti Prodigy! I wonder sometimes how parents as well as schools lend themselves to an undeserved eulogy and feel gratification in tall claims. It has become a fancy to use the word prodigy without even knowing the basic traits of a prodigy. We need more good human beings than prodigies and that is the objective of education.

Well, this leads me to refer to you an important passage from the book “*Phantoms of the brain*” by Dr. V.S. Ramachandra where he talks about some people with extraordinary brilliance. Here is the passage:

“There are some questions about the brain that are so mysterious, so deeply enigmatic, that most serious scientists simply shy away from them, as if to say, “ This would be too premature to study” and “I ‘d would be a fool if I embarked on such a quest.” The author continues “What allowed Mozart to compose an entire symphony in his head or mathematicians like Fermat or Ramanujan to “discover” flawless conjectures and theorems without ever going through step-by-step formal proofs? And what goes on in the brain of a person like Dylan Thomas that allowed him to write such evocative poetry? Is the creative spark simply an expression of the divine spark that exists in all of us?”

How does the human brain acquire such competencies to see things beyond? How has the evolution of the brain adopted itself to a series of continuous changes over thousands of years? Why do we say that our children are more intelligent than the present generation?

The author quotes Alfred Russel Wallace, a contemporary of Darwin. The passage reads as under:

“According to Wallace, as the human brain evolved, it encountered a new and equally powerful force called culture. Once culture, language and writing emerged, he argued, human evolution became La Marckian- that is, you could pass on the accumulated wisdom of a lifetime to your offspring. The progeny will be much wiser than the offspring of illiterates not because your genes have changed, but simply because knowledge – in the form of culture – has been transferred from your brain to your child’s brain. In this way, the brain is symbiotic with culture; the two are interdependent as the naked hermit crab and its shell or the nucleated cell and its mitochondria.”

Continues Wallace:

“Most organisms evolve to become more and more specialized as they take up new environment niches, be it a longer neck for the giraffe or sonar for the bat. Humans, on the other hand, have evolved an organ, a brain, that gives us the capacity to evade specialization. We can colonize the Arctic without evolving a fur coat over millions of years like the polar bear because we can go kill one, take its coat and drape it on ourselves. And then we can give it to our children and grand children.

Well, sometime scientists believed that the genius of an individual was linked to his glial cells in the brain. The glial cells also known as interneurons, are at least ten times more concentrated in the brain than their counterparts. Ben Jessen says **“A number this large is difficult to conceive, but it means that at birth we have as many as one thousand billion glial cells.. that is, one hundred times the number of stars known in the Milky Way.”** Wow! Is that the power of our brain? It is claimed that an autopsy of Einstein’s brain revealed that he had a greater than average number of glial cells!

Here are a few observations on Einstein’s brain:

These scientists counted the number of neurons (nerve cells) and glial cells in four areas of Einstein’s brain: area 9 of the cerebral cortex on the right and left hemisphere and area 39 of the cerebral cortex on the right and left hemisphere. Area 9 is located in the frontal lobe (prefrontal cortex) and is thought to be important for planning behavior, attention and memory. Area 39 is located in the parietal lobe and is part of the "association cortex." Area 39 is thought to be involved with language and several other complex functions. The ratios of neurons to glial cells in Einstein’s brain were compared to those from the brains of 11 men who died at the average age of 64.

A second research paper states as follows:

A second paper (*Neuroscience Letters*, 1996) describing Einstein's brain was published in 1996. Einstein's brain weighed only 1,230 grams, which is less than the average adult male brain (about 1,400 grams). The authors also reported that the thickness of Einstein's cerebral cortex (area 9) was thinner than that of five control brains. However, the DENSITY of neurons in Einstein's brain was greater. In other words, Einstein was able to pack more neurons in a given area of cortex. (adopted from the website- Neuroscience for Kids)

It is also important to note that there are many criticisms to the above propositions. Science being what it is – there is always an attempt to prove or disprove things. There is a serious debate among the neuropsychologists on what makes a genius. In the process of this intellectual drama, we gain to learn many things about the behaviour of the universe and the process of evolution. They only provoke our curiosity to explore!

So how do we define a prodigy? How do we define a genius? Is there a mechanism that we can peep into the brain and count the cells? Certainly Not. It is a complex question to answer. However, we will certainly try to understand the different points of view on this question from eminent neuropsychologists.

Meanwhile, let us advice ourselves not to call a crawling baby as a genius in the offing and overstress the child to become what he or she would never have dreamt or fancied!

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The right and the left-brain concept

Endorsing similar views to what has been said about the evolution of the human brain by Wallace, Daniel Goleman writes in his book “Emotional Intelligence”:

“The Homo sapiens neo-cortex, so much larger than in any other species, has added all that is distinctly human. The neo-cortex is the sea of thoughts; it contains the centre that put together and comprehends what senses perceive. It adds to a feeling what we think about it – and allows us to have feelings about ideas, art, symbols and imaginings.

In evolution, the neo-cortex allowed a judicious fine tuning that no doubt has made enormous advantages to an organism’s ability to survive adversity, making it more likely that the progeny in turn pass on the gene that contains the same neural circuit. The survival edge is due to the neo-cortex ‘s talent for strategizing, long term planning, and other mental wiles. Beyond that the triumphs of art, of civilization, and culture are all fruits of neo-cortex.”

So much is to support the idea that the brain is continually evolving responding to the culture (which includes the innovations, lifestyles and new learning). No wonder we expect our newborn to be more responsive and adoptable to the latest.

We noticed statements about the two halves of the brain - that it comprises of two distinct portions – the left brain and the right brain. Neurologists have shown that the right side of the brain controls the left side of the body and the left side of the brain controls the activities of the right side of the body. Hence if someone is paralyzed on the right, it means that there are lesions of the left side and vice versa.

Further, a lot of research has also been done on certain faculties of learning being exclusively associated with either right or the left side. Let us see what the scientists have got to say:

Some basic skills of the two halves of the brain:

Right brain	Left brain
Logical	Intuitive
Mathematical	Artistic
Linear	Non-linear
Sequential	Simultaneous
Verbal	Visual
Rational	Emotional
Serious	Playful

What are the preferences of functions on both sides?

Right Brain	Left Brain
<ul style="list-style-type: none"> ■ Prefer things in sequence ■ Learn best from parts to whole ■ Prefer a phonetic reading system ■ Like words, symbols and letters ■ Want to gather related factual information ■ Prefer detailed orderly instruction ■ Experience more internal focus ■ Want structure and predictability 	<ul style="list-style-type: none"> ■ Be more comfortable with randomness ■ Learn best from whole to parts ■ Prefer a whole-language reading system ■ Like pictures, graphs and charts ■ Rather see or experience first ■ Want to gather information about relationships and things ■ Prefer spontaneous learning environments ■ Want open ended approaches, novelty and surprises

Well, before we see what the current views and researches on this particular approach are, remember that physical exercises for the right side of the body strengthened the left side of the brain and those of the left side nurtured the right side of the brain. Many of the activities we do carry out in everyday life enables this. Some psychologists do suggest that a baby in the formative years (especially six months old) should be allowed to crawl as much as possible for it helps in nurturing both sides of the brain and for a holistic growth. Hence let us not get panicky, when the kids at home delay their time to stand up and are still crawling!
More about the right and the left brain in the future issues. Keep reading!

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The versatile brain

The evolutionary biologists have debated on various approaches to the evolution of the brain. Whatever be the mode and process of evolution, they tend to agree on certain common grounds which explain the role of intelligence and its application. Writes, Dr. V. S. Ramachandra, in his book, *“Phantoms of the brain”*, **“General Intelligence evolved, the argument goes, so that one can communicate, hunt game, hoard food in granaries, engage in elaborate social rituals and do the myriad things that humans enjoy and that helps them to survive. But once this intelligence was in place, you could use it for all sorts of other things, like the calculus, music and the design of scientific instruments to extend the reach of our senses. By the way analogy, consider the human hand. Even though it evolved its amazing versatility for grasping at the tree branches, it can now be used to count, write poetry, rock the cradle, wield a scepter and make shadow puppets.”**

It appears therefore that it is important to provide the required opportunities for the brain to acquire its functional versatility. Parents, teachers, schools and other systems need to understand this, says Ben Jessen **“Many educators unknowingly inhibit the brain’s learning ability by teaching in an ultra-linear, structured, and predictable fashion. The result is bored or frustrated learners who then perpetuate the underachievement cycle.”**

Listen to the views of Jessen, who summarizing a world of research on brain and its functions says: **“Biologically, physically, intellectually, and emotionally, we are doing many things at once. In fact, the brain can’t do less than multi-processing! It is constantly registering perceptions (over 36000 visual cues per hour) monitoring our vital signs (heart, hormone levels, breathing, digestion etc.) and continually updating our reality (matching new learning with representations from the past). In addition, the brain is attaching emotions to each event and thought forming patterns of meaning to construct the larger picture and interfering conclusions about the information acquired.”** Here are some excerpts on how the brain processes information:

1. Linear Vs. Holistic Processing - The left side of the brain processes information in a linear manner. It processes from part to whole. It takes pieces, lines them up, and arranges them in a logical order; then it draws conclusions. The right brain however, processes from whole to parts, holistically. It starts with the answer. It sees the big picture first, not the details. If you are right-brained, you may have difficulty following a lecture unless you are given the big picture first. That is why it is absolutely necessary for a right-brained person

to read an assigned chapter or background information before a lecture or to survey a chapter before reading. If an instructor doesn't consistently give an overview before he or she begins a lecture, you may need to ask at the end of class what the next lecture will be and how you can prepare for it. If you are predominantly right brained, you may also have trouble outlining (You've probably written many papers first and outlined them latter because an outline was required). You're the student who needs to know why you are doing something. Left-brained students would do well to exercise their right-brain in such a manner.

2. Sequential Vs. Random Processing- In addition to thinking in a linear manner, the left-brain processes in sequence. The left brained person is a list maker. If you are left brained, you would enjoy making master schedules and daily planning. You complete tasks in order and take pleasure in checking them off when they are accomplished. Likewise, learning things in sequence is relatively easy for you. For example, spelling involves sequencing - if you are left-brained, you are probably a good speller. The left brain is also at work in the linear and sequential processing of math and in following directions.

By, contrast, the approach of the right-brained student is random. If you are right-brained, you may flit from one tack to another. You will get just as much done, but perhaps without having addressed priorities. An assignment may be late or incomplete, not because you weren't working but because you were working on something else. You were ready to rebel when asked to make study schedules for the week.

But because of the random nature of your dominant side, you must make lists, and you must make schedules. This may be your only hope for survival in college. You should also make a special effort to read directions. Oh yes, the mention of spelling makes you cringe. Use the dictionary, carry a Franklin speller, use the spell checker on your computer. Never turn in an assignment without proofing for spelling. Because the right side of the brain is color sensitive, you might try using colors to learn sequence, making the first step green, the second blue, and the last red. Or you may want to "walk" a sequence, either by physically going from place to place or by imagining it. For the first step of the sequence, you might walk to the front door; for the second, to the kitchen; for the third, to the den, etc. Or make Step One a certain place or thing in you dorm room or study place, and Step Two another. If you consistently use the same sequence, you will find that this strategy is transferable to many tasks involving sequence.

So much to know about how mind processes the information! Isn't it interesting to note that the brain is more disciplined than what we imagine it to be? Isn't it following a sequence or an order? Don't you think this understanding would help to strategize our pedagogy in such a manner that learning could be facilitated?

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The brain and the Jazz quartet

We saw in the earlier issue how the right side of the brain processes information and the left side. One would wonder to know whether each unit of the brain acts independently. They do, but then they function together as a single unit. There is so much of harmony and so much of synergy – probably it is a lesson we should learn on teamwork!

Robert Sylvester, a retired professor of the University of Oregon, compares it to that of a jazz quartet. He says, **“Members of the Jazz quartet communicate with one another as each improvises on a simple theme, blending individual efforts to a unified song.”** Explaining this phenomenon further Ben Jessen says **“The four separate areas or lobes of the cerebrum blend like four different musician’s instruments without overt communication, yet they make great music together. Much of our learning happens in random, personalized, often complex patterns that defy description except in the most reductionist terms. In fact, the brain thrives on multi-path, multi-model experiences. Any teacher who thinks they can inspire great learning by teaching with a singular approach is going to be sadly disappointed.”**

He argues further **“As children we learned about our neighbourhood from scattered, random input that was messy at times and left room for explanations and manipulations. Most of what we learned in fact, as children was imprinted in our memory in the chaotic sort of way. We certainly didn’t get lessons from a “how to” book on how to crawl or talk – acts that require complex sequences of precise movements. We figured it out by trial and error.”**

This is a very important to people who believe **“to teach”**. It is increasingly convincing to note that **“teachers”** are only **“facilitators.”**

There are a set of scientists who discard the theory of **“part”** behaviour of the brain and believe in **“holism”**. They argue that all actions result as a consequence of the resultant interconnectivity of various parts of this organ.

“Contrary to what some would lead you to believe, there is no such thing as right brain learning or left-brain learning. There are only preferences where more of one hemisphere is activated than another. There is no learning taking place only in upper cortex or only in lower stem. Our brain is highly interactive.”

Explaining this holistic behaviour Sandra Blakeslee and others point out **“The holistic view is defended by the fact that many areas, especially critical regions, can be recruited for multiple tasks. Everything is connected to everything say hoists, and so the search for distinct modules is a waste of time”**

Leaving aside the arguments with regard to how the physiology of the brain functions to the better sense of the scientists, let us get to know, as educators the following:

- Learning starts at the prenatal stage
- Learning happens through all the senses
- Parental attitude and environment has a great impact on the learning
- The human brain is a complex and powerful organ that has evolved over centuries and stores in it the experiences of thousands of years in the form of inherited “culture”
- Body and mind are interrelated; and hence it is important to consider them holistically
- The brain is selective and works in an orderly manner, defining its own order
- The capacity of the brain is extensive, and it is more capable than hundreds of super-computers working together.
- Learning happens through establishment of neural networks and every new neural network causes a physical change in the brain
- The brain has the capacity for multi-processing and accepts challenges with ease

Well, with this understanding of the evolutionary process of the brain, can we take the child into the school (the formal structure) now? In the process of enabling the child in the classroom, we would also learn various interesting information about cognitive mapping, emotional intelligence and multiple intelligences. We need to thank our children, who really help us to learn so much. Isn't it?

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The first step to the school

The entry of a child to a school is as exciting as stepping on the moon! The child is haunted by the fear of the unknown, exposure to unfamiliar situations, a move from a world of spontaneity to a world of order. The child is forced into a routine – a process that conditions the types of responses he or she should exhibit for every stimulus. The child looks at the environment with a sense of suspicion, a sense of wonder and awe.

The environment is quite new, and the management of this change appears quite difficult for the child initially. Hence the classrooms for the preparatory classes provide not only a heterogeneity of responses to the same stimuli, but the learning experiences are also varied and heterogeneous. Therefore, the role of the teachers in the preparatory classes assumes a great significance. Apart from imparting the basic knowledge which they are called upon to do, they need to understand the child psychology with its finest nuances and act as counselors, facilitators and change managers.

Causes for fear:

Why do the children develop a fear about the school?

1. They move to an unfamiliar place
2. They are introduced to a group of unknown people.
3. They feel a threat to their privacy.
4. They feel an interference with their time and space.
5. They are afraid of the loss of relationship that has existed all along.
6. They feel difficulty in developing a new set of relationships
7. They feel their freedom challenged.
8. They are afraid of being called upon to do things which they have not been exposed to.
9. They are expected to cope with the emotions and feelings of others.
10. They are expected to maintain an order that they had never kept.
11. They feel unnerved to think the way they are taught to think
12. They are exposed to visuals and auditory exercises in which either they have no aptitude or have not yet developed an attitude.

Therefore, it is the primary duty of the school and the concerned teachers to appreciate the above concerns and take steps that would help in addressing these issues.

Reassuring a child:

This can be done by instilling a sense of belongingness, a sense of confidence and reassuring them of their privacy and freedom.

How can this be done? How do we reassure a child that “All is well and that they should feel comfortable?”

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Facilitating change

The strategies to be adopted by the teachers handling the nursery classes need careful scrutiny and attention. The strategies adopted by the teachers should help in:

- **Eliminating fear**

Fear is the most fundamental feeling of human species. In the early childhood the child gets into this emotion quite quickly. Fear for a new environment, fear from new people, fear of the unknown and fear from new ventures are quite common the children. Hence concerted efforts should be made to eliminate the fear so that children can adapt to a new environment and a new set of people.

- **Providing a sense of reassurance**

The entry into a new environment including school calls for a sense of reassurance for the child. The child was to know and feel that everything around is safe and alright. There is no cause for anxiety. The child wants a hand to hold on to step into a new role. The child looks for assured support. The parents and teachers provide this support.

- **Giving a sense of comfort**

Physical as well as emotional blocks create a sense of discomfort to the child. In a school environment the ambience of the classroom, the seating arrangement, access to facilities, peer interactions, teacher-child relationships, learning processes and many other things are possible instruments of discomfort. They can create a mental block for the learners. It is important to ensure that all stakeholders take steps to eliminate the roadblocks, if any, to enhance the level of comfort of the learners.

- **Providing an atmosphere of homeliness**

The child has been spending the former years of life at home. The child has been enjoying the company of the near and dear. The child has been showered with all love and affection of the family members. The requirements of the child have been met from time to time without

any constraints. The pranks and disorderly behaviour of the child have been tolerated and sometimes enjoyed. The change of environment from home to school creates a threat to this freedom. The child is called upon to fit into an orderly behaviour. The child is required to follow certain rules and regulations. The child faces the threat of punishment to every act of omission and commission. The teachers need to understand this change of order and hence create a homely atmosphere as far as possible, so that the change management is possible and easy.

- **Developing a feeling of ownership**

The child has been quite possessive about the people and materials at home. Freedom for mobility within the environment of home was not inhibited. The child had the opportunity to touch, feel and communicate without any reservation. The child created a sense of ownership with all immediate environments. The change projects a set of new things where the child is required to identify with things differently. The concept of school property, the idea of sharing materials and properties, the concept of co-existence, caring for others, are the new concepts introduced in the classroom. Hence the child has to develop the idea of joint ownership or social living. Teachers need to develop this idea in an acceptable manner.

- **Motivating for participation**

As the child is entering into a new world of functions and interactions, the child comes with a set of inhibitions born out of fear and other instruments of anxiety. The child has to open up to this new environment. The child has to recognize the people and events around it as normal causations. The child should learn to interact with them in a free and effective manner.

This calls for substantial amount of motivation on the part of the learner. Teacher, parents and the curriculum have to provide the required motivation to the learner to break the barriers. Motivation will also help the children with slow adoptability to move faster towards the process of integration. The inputs of motivation have to be examined case wise as there are some which are general and others trainable.

This calls for a strategic planning in handling the entire ambience of the classroom. The teachers shall use such skills of pedagogy that would help in addressing the above issues.

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The primary classrooms

1. The classroom and the school environment have to be child friendly.

It is important that the ergonomic design of the classroom takes note of all the basic requirements of the child. Some issues which need attention are:

- The location
- Access to the classroom
- The position of the blackboard

Sometimes the students have to:

- Walk long distances to reach the classroom
- Walk through dusty ground to reach the classroom
- Cross the school bus traffic or cycle traffic inside the campus
- Get through many staircases to reach the floor or the room

These could be avoided to prevent the students becoming tired mentally before they enter the classroom

2. The formative classes may be kept at a distance from the classroom of the senior students.

In some schools, the students have to cross through classrooms where the senior students are to attend. Groups of adolescent students standing on the way and talking, gossiping and interacting could have an impact on the minds of the students. Sometimes senior students running around might collide against the youngsters. These could be avoided by keeping the classrooms of the senior students at farther places or in separate floors. Whenever difficulties in the interaction between the younger children and the senior students are observed, the teachers should bring

3. The classroom has to be airy and should have sufficient light.

The students in the primary/nursery classes are likely to become physically tired quickly and fall asleep or become drowsy. Absence of adequate light or air catalyzes this process and hence the students may lose their attention, motivation or interest in the learning. It is important to take care of these minimal requirements.

4. The furniture should be specifically designed to suit to the needs of the students.

All types of furniture would not suit the comfort level of the young students. It is important to design furniture which would specifically (taking the ergonomic requirements in view) suit these students. The material, the size, the height, the seating space, leg room and several other issues need to be considered while planning. The comfort level of the furniture has a significant role to play in enhancing the attention, the quality of learning, the quality of peer as well as teacher-child interactions.

5. Arrangements of furniture should be done in a way that does not threaten the privacy and personal freedom of the learner.

Very often furniture is arranged in a linear fashion as is done in lecture rooms. In the formative classes, the learning is multifold and highly interactive. Hence arrangement of furniture has to facilitate the process. Furniture ill organized tend to affect the personal freedom of the learner in terms of mobility, sitting postures, writing postures, visibility, audibility and interaction with peers. Round table arrangements, distributive participation models and other differential patterns could be adopted as per the nature of the subject and time.

6. Prototype of classical classrooms exhibiting the authority of the teacher has to be dispensed with.

The position of the teacher in the classroom conveys a lot of meaning. While the position of the teacher should indicate the access, approach, equity, visibility and audibility, any position that would show a sense of militant authority should be avoided. The position and posture of the teacher may create mental blocks on the young minds and feelings of fear, suspicion and threat may be felt by the child. Hence the teacher should be mobile, show flexible postures exhibiting reasonable intimacy and ownership to the child.

7. The classrooms should have easy access to washrooms.

The young children are often tempted to use the washrooms. On many occasions they tend to rush in the last minute without lack of control. Sometimes indigestion due to the food brought and consumed by them leads to stomach disorders compelling them to use the washrooms. Teachers often tend to silence them and do not let them move instantaneously sometimes leading to avoidable discomfort. It is therefore important if the classrooms are in the same floor and reasonably close to the classrooms. Elevations to the washrooms, access to the relief basins and wash taps should be designed taking into consideration their requirements.

8. **The classrooms could be preferably designed in such a way that either the playground or an amphitheater is accessible.**

Some schools tend to have a mini-playground or an amphitheatre attached to the primary classrooms. That helps the students to organize themselves in proximity and move from the classrooms without any hindrance. Further they could be saved from injuries and dust.

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The Role of the teacher

The teachers should keep the following points in their mind while entering a classroom for effective transaction:

1. The teachers should avoid militant or aggressive postures.

Both verbal and non-verbal communication has a great impact on the young minds. They tend to set attitudes and emotional structures in the minds of the learners. Hence adoption of aggressive and non-militant postures and use of such body language has an impact on the learning pattern. Sometimes they tend to set at naught the interests of the learners in as these postures are highly inhibitive.

2. The teachers should be mobile and exhibit good inter-personnel relationship.

As intensive learning takes place more at the zone of intimacy or proximate zone at the formative level teachers need to exhibit a good inter-personal relationship. The following points are worthy of consideration:

- a. A pleasing smile
- b. A word of appreciation
- c. An act of motivation
- d. Helping to improve self-image
- e. A sense of justice and equity

That apart, teachers should be reasonably mobile. Mobility facilitates freedom, a greater universe for approach and participation, an access and flexibility.

3. The teachers should be communicative.

Communication does not necessarily refer to the use and practice of language and vocabulary. Communication is complete only when the message reaches the listener in the same way it is conceived. Distortion of communication takes place either due to excessive thrust or inadequate thrust on the required fields of communication.

Adoption of role play, songs, and other histrionic skills as effective tools for expression are important.

4. The verbal language should be soft, personal and persuasive.

Students are likely to fall into emotional inadequacies if treated in a rude or an indifferent manner. They fall into an identity crisis on developing a sense of inferiority. Hence, they have to be handled carefully through soft, personal and persuasive language. The language used by the teacher should be supportive, healing and encouraging. Verbal admonitions with contemptuous language have to be avoided as they are likely to cause not only emotional trauma on the learner, but sometimes the consequent shame or remorse, may lead to avoidable suicides or other social problems.

5. Discouraging, suspicious and comparative statements have to be avoided.

Statements that would discourage a learner like “Stupid, incorrigible fellow, useless guy” have to be avoided. Maligning a child in the presence of others, comments which are not warranted for a situation should not be used. Comparison of any two children in the class on two non-comparable can be a serious misadventure. Special care has to be taken especially while dealing with children who are differentially abled or partial challenges.

6. Statements and actions that would generate stress, anxiety and isolation should be avoided.

Sometimes verbal statements of teachers do generate stress and anxiety among the students. Some of these statements may be intended to speed up the activities of the learners; some of them are of comparative nature with others; some of the statements could be on the habits and mannerisms of the child. These do have a direct or indirect impact on the psyche of the learners. Teachers should consciously avoid such statements.

Let us see a few more points the teachers should keep in their mind in the next issue

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The Role of the teacher *(continued from the previous issue)*

7. Students should not be stopped or curtailed from speaking or curtailing their emotions.

The learners of the formative stage often tend to speak or act in a spontaneous manner. Their words or emotions come without any inhibition and in the natural order. Any attempt to curb or curtain these responses of the learner may have a negative value. While it is important that we should help them to follow some order, outright rejection of these statements or asking them to remain quiet while they want to give some responses may be demotivating to the learners.

8. Punitive statements and actions have to be avoided.

Statements and actions which are exclusively punitive in nature have to be dispensed with. Such statements have a retrograde effect on the growth pattern of the learners. Sometimes they induce negative emotions like fear, anxiety, regret, jealousy, enmity etc., they may also lead to withdrawal symptoms on the part of the learners leading to denial of enterprise, risk-taking, adventure and kill the imaginative faculties.

9. Statements that would reflect on the physical stature, inadequacies, behavioural patterns, mannerisms and family traits shall not be made.

Personal statements relating to the physical stature, body features, health inadequacies, family traits and other mannerisms have to be totally avoided. These to development of inferiority, aggressive responses, and misadventures. These may also lead to development of low esteem and kill the creative faculties. Sometimes they lead to violent responses and assault on the teachers or other fellow students. They also may lead to development of set attitudes. Very often, the inhibitive mind set of certain students is borne out of such statements.

10. Teachers should avoid generalizations.

There is a tendency on the part of most teachers to “generalize” issues and making a comment or a holistic observation. Statements like “Suresh is incompetent” are too much a generalized statement. This observation might come from a mathematics teacher who finds Suresh inadequate in her subject. Suresh’s lack of interest in the subject may be due to several reasons. However, he may be too good in painting, a good composer, a good sportsman or may have several other latent talents which a student good enough in Mathematics doesn’t have. A generalized statement might have a serious and long-term impact on the profile of the learner. Teachers need to understand that the learner has to be assessed in context and any generalized statement is neither valid nor does make a meaning.

11. Do not Brand students.

Branding of students based on caste, community, language, family background creates jealousy and ill-will among the students especially with their peers. They have an impact on the content and methods of their learning.

12. The learners should be encouraged to exhibit ownership with the class, the peers and the teacher.

The accomplishment of any task becomes effective when the individual becomes possessive about it. It gives a sense of belongingness and ownership. Every task becomes personal and it enhances the commitment of the learner towards the task. Teachers should take all possible efforts to create an ambience in the classrooms which would enhance the level of ownership of the students towards the classroom and the school. Concepts of neatness, order, adherence to rules and regulations would all be possible once the ownership for the organization is built.

13. Students who feel insecure and lost have to be quickly and effectively rehabilitated to the mainstream through appropriate strategies and should not be allowed to hang on with insecurity for long.

It is quite possible that some students may feel lost or out of suit in the new environment. It is also possible that some students might get into some minor psychological depressions in the formative stage due to the following reasons:

- Initial formal separation from the family
- Inability to cope with the new physical environment
- Inability to cope with the new peers
- Inability to cope with changing food timings/food patterns
- Inability to cope with the noise level in the school
- Inability to cope with the personality and methods of the teacher
- Inability to cope with learning process

It is important that the school and the teachers should take all possible initiatives to de-stress the child from all the above possible psychological issues and rehabilitate them. The longer is the

duration for rehabilitation the lesser is the ability of the child to cope. It would be advisable to look into the individual cases, consult the members of the family and take their assistance. It may also be advisable to seek the help of the child psychologists wherever found necessary.

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Some problems children face in the classrooms

There are several issues which relate to the privacy of the learners in the school environment which needs to be understood and handled.

Some of these are:

1. The child is uncomfortable with the uniform, tie, shoes or other personal ware and they are unable to communicate.

In a large number of cases the students who have been trained to live with casual dresses at home, are now required to wear tailor-made formal dresses. They are required to follow a dress code. Some of features dress codes are quite often not conducive to the local climate or geo-cultural features. However, the schools tend to prescribe them to project an image of the school. Some causes for the discomfort are:

- The fittings are tight
- The colour of the uniform is not liked by the child
- The tie is not comfortable
- The student has to sit for long hours with the shoes
- There is a lot of sweating inside the socks
- Some schools tend to insist wearing a coat, a blazer or additional wear

There could be several other reasons too which the child is unable to communicate.

2. The child is hungry and is unable to tell the teacher.

Very often, parents tend to hurry up with the breakfast of the child in the morning. Sometimes the school sessions are so early that the child has no inclination for an early breakfast and takes the same under the compulsion of the parents. It may cause indigestion. Sometimes they tend to overeat under compulsion leading to stomach discomfort. There are cases where the child does not eat adequately in the morning and feels hungry quite early. Change of timings of food from home to school is another issue with which the child tends to

cope. A hungry child as well as a child is thus unable to communicate with the teacher for the following reasons:

- Feeling of shame
- Fear of the self-image being affected
- Fear of being reprimanded publicly
- Fear of being ridiculed in the presence of others

Teachers need to understand the above critical issues which are quite personal for each child and help them to overcome these problems.

3. The child wants to use the washrooms and is inhibited from expressing.

In the early childhood, the children find it difficult to control the call of nature. In many cases fear, stress, anxiety and several psychological issues lead to a requirement of releasing the body waste products at unscheduled times. There are cases when children tend to urinate in the classroom out of fear. Generally, children also have a tendency to go to a wash room when some other child opts to go. Teachers often find that such demands are bogus, concocted and tend to ignore them or silence them. Such refusals are incorrect. Teachers shall appreciate the needs of children – both psychological and physiological and help them to sort out the issues.

4. The child is having some sickness and is unable to understand.

Many young children suffer from diseases and health disorders which have not been identified or they are not able to communicate. Some simple disorders include:

- Dust allergy
- Bronchitis
- Tooth disorders
- Stomach upsets
- Skin allergies
- Stammering
- Poor visibility
- Colour blindness
- Hearing disorders
- Epilepsy
- Psychological depression

Teachers should be able to understand the limitations arising out of such inconveniences in the process of learning. This calls for a continuous dialogue with the parents, sometimes with the assistance of the school counselor. Quite often parents tend to hide

some of these problems from the school authorities and inform only when the child faces a crisis in the school premises.

We will consider some more concerns in the next issue

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5. The child is feeling sleepy and is unable to do so.

In many cases when the child enters the premises of the school, the scheduled sleep hours of the children at home may be different. They might have the practice of sleeping during the daytime. Suddenly when they enter the school and are required to keep awake and show their attention and concentration, they may not be in a position to cope. Teachers may find the child sleeping during the course of an active class or unable to bestow any attention feeling drowsy.

Teachers should know that these are normal problems of a change management process in the formative years of schooling. Such children should be taken separate care of and helped to get into the mainstream slowly through attitudinal change.

6. The child is disturbed psychologically by some events at home and lives with it.

Verbal and physical abuses of the child at home are a matter of great concern. Many times, the children are unable to speak it out openly and brood over them when alone. They carry the pain, or the emotional trauma associated with such experiences even to the classroom. It is very difficult to understand the background or the context of such events. Sometimes even parents do not come to know of such abuses as child associates such things with a personal shame and assault on their ego.

7. The child is obsessed with parental conflicts and the mind is preoccupied emotionally.

Quite often conflicts and quarrels between parents and other family members might have a serious impact on the behavioural pattern, lifestyle and the learning process of the students. The “speed syndrome” of the morning hours in most families is associated with a patterned tension and the child is trained to carry such a tension alongside to the school. The inability of the parents to adjust to their own timings as well as to that of the child, deprives of both what they are due during those stages of growth.

The children understand the parental conflicts easily:

- Through their verbal exchanges
- Through their body language
- Through the drama of activities
- Through the emotional outbursts
- Through the responses received for the questions
- Through the support system available at a point of time

The child compares oneself with peers and feels inferior or defeated.

8. The child is prejudiced with the love and care exhibited to a peer by the parents in the absence of a similar treatment.

A common thing among school going children is their observation of the comfort level and the utilities available to their neighbours and peers. Quite often this may lead to a sense of inadequacy, low self-esteem, jealousy and possibly violent outburst too.

Some reasons for such prejudices could be:

- There is a visible economic disparity in the family background of any two students
- There is a social disparity between the peers
- The support systems available for a pair of students are different
- The learning style and behaviour are different
- There is a greater exposure to one child as against the other
- The love and care for a particular child is unavailable to the other child
- The parents of one child come from an educated background while other is not
- The child believes another to have greater personal attention in the classroom or a preferred status
- The health status of one child could be superior to another child
- The child feels insecure in the company of the other due to bullying or other reasons
- There is an inferiority in one because of the food items brought and consumed by another
- A particular child has an extrovert personality while the other is an introvert

There could be several other reasons for the prejudices. While it may not be possible for the teacher and the school to seek remedies for all the above, nevertheless it is very important that teachers tend to observe and locate the causes of such issues so that they can be appropriately responded either by the teacher or through any other intervention.

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1. The child is unable to establish a rapport with the neighbor in the classroom.

The inability of a child to establish a rapport with the neighbour may be borne out of any of the prejudices listed above. But there could be several other reasons for the inability of one child to establish rapport with the other.

Some of the broad considerations for such a situation are:

- The understanding and competency of the languages of both the students are different.
- The vocabulary and style of speech of one learner is not compatible to another learner
- A child exhibits withdrawal symptoms because of any of the above issues
- A child is stammering and hence would like to have a few contacts only
- The aggressive nature of one child is not liked by the others
- A mental model or belief about another child is set in the mind of one child and he/she is unable to change that mental model
- A child doesn't want to expose one's own inadequacies

2. The child is unable to establish a rapport with the teacher.

- The profile of the teacher is unimpressive to the child
- The child feels the teacher is highly authoritative and hence keeps away
- The child believes that teacher has certain preferences and hence is disillusioned with the teacher.
- The language used by the teacher is not understood by the child adequately and hence there is an intellectual barrier
- The teacher appears haughty and spreading negative vibrations and hence there is an emotional barrier
- The teacher threatens of taking the child to task by informing the parents and hence the child fears of being misjudged and misinformed to the parents
- The body language and the posture of the teacher are child-friendly
- The teacher is always conceived as a judging or evaluating persona and hence the child wants to keep a distance

There could be several other reasons too. Therefore, it is important that teachers do carry with them a positive disposition and a friendly aura so that they are always liked by the students in the classroom.

3. The child is being abused and is unable to understand or communicate.

There are some cases where the child is being abused at home.

- Physical abuse of the child by engaging him/her in hard labour,
- Snatching away their time of study for employment in domestic chorus, baby sitting etc., for meeting economic needs,
- Engaging a child into wedlock at early years or discussion involving the marriage of a girl or a boy at a later period within the chosen members of the family,
- Ill-treatment of a child against their own brother or sister or any other member of the family,
- Denial of basic rights to one child as against another
- Discrimination due to gender
- Discrimination due to poor health or physical stature
- Discrimination due to physical handicap or emotional inadequacies

are some of the generally known reasons. In these circumstances, the child feels abused, humiliated, exploited and marginalized. The child is unable to communicate the feelings with anyone else, as in many cases it is the closest family members who are the people involved in such abuses.

Such children need adequate care and attention, counseling and help to get back to normalcy. These might have an impact on the learning process, performance profile and development of attitudes.

4. The child is unhappy with the quality or the quantity of the food being given and cannot help eating.

Malnutrition and under-nutrition are two vital causes which have impact on the learning process and growth. Staple food, fast food, food without nutrients, lead to lack of energy, lack of attention, grasp and concentration of the child. Schools and teachers need to take note of such cases and bring them to the attention of parents for appropriate remedies. It is important that parents should be advised to give children

- fresh food
- combination of vegetables
- fruits
- easily digestible food
- less oily/spicy food
- balanced food

Sometimes the food is not tasty or less digestible to the children. Parents need to be
Counseled

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Some problems faced by the kids (contd)-

5. The child is haunted by some fantasy or fear of the unknown.

Sometimes the children have some fantasies or fear in their mind. Stories of ghosts, angels, adventures, travelogues, suspense stories etc, create sometimes fantasies in the minds of the children. They try to identify with the characters, events, dreams and places. Sometimes this leads to development of some mental models and resultant behavioural patterns. Similarly, the fear of the unknown environment, people, events etc., could possibly haunt the minds of the children. These have impact on the learning process of the children. Teachers need to handle the specific cases of such students and handle them with care.

6. The child is having a learning difficulty and is unable to understand or communicate.

Some students in the primary classes might have certain types of learning difficulties. The child may not be in a position to understand the cause of the learning difficulties and communicate it appropriately.

The reasons for the learning difficulties could be many.

- There is a fixed mental model for learning in the child, which does not facilitate learning.
- There is a psychological block that inhibits learning
- The child has no aptitude for a particular subject
- The child is unable to negotiate with the curriculum
- There is a physiological co-ordination difficulty.
- There is an external input which causes a mental conflict while initiating to do a work.
- There is a physiological problem which is not evident
- The child has a preference for certain other methods of learning than what is prescribed
- The child is unable to cope with the speed of inputs
- The child feels negated, marginalized in a group of learners and hence exhibits withdrawal symptoms.

There could be several other reasons including Dyslexia, ADHD and other problems which need a psychological or clinical attention. Teachers would do well to understand, appreciate these problems and suggest appropriate remedies in consultation with the school counselor, principal and the parents.

A teacher who expresses displeasure, anger, disappointment, disgust, indifference or any such negative feeling would do a great damage not only to the learning profile of the learner, but the emotional profile.

Daniel Goleman explains based on extensive research, **“When someone dumps their toxic feelings on us- explodes in anger or threats, shows disgust or contempt – they activate in us circuitry for those very same distressing emotions. Their act has potent neurological consequences: emotions are contagious. We “catch” strong emotions much as we do a rhinovirus- and so can come down with the emotional equivalent of a cold”**

I recall fondly my visit to one of the upcoming schools in a small town run by a couple of retired women committed to the cause of education. The school had a computer print out pasted at the entrance. **“This is a positive zone. Please do not bring negative vibrations inside.”**

Can we learn something from such invisible educators?

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Effective communication with the child is important for enhancement of the quality of learning. Teachers need to adopt appropriate strategies to ensure effective communication. The strategy has to be holistic and multi-faceted. Some of the methods they could follow are-

Develop appropriate body language:

The disposition of the teacher is critical in the classroom environment at the formative level. The following non-verbal communication of the teacher has a retrograde effect on the development of rapport with the child.

- A frowning face,
- A grin
- A taunting posture
- An aggressive look
- A sarcasm on face
- A slapping or hitting posture
- An unkind touch
- An indifferent outlook

The children tend to closely watch the expressions of the teacher and respond psychologically either through positive relationship or through symptoms of withdrawal. The teachers should train themselves to understand the implications of their non-verbal communication and then resort to such modes of non-verbal communication that would help in positive relationships and reassurance.

“An emotion can pass from person to person silently, without any one consciously noticing, because the circuitry for this contagion lies in the low road.” says Daniel Goleman. Hence, the children not only watch the facial expressions of the teacher but do take over their emotions in a silent mode and process them in their own frame of mind. The teachers should therefore take special care of how they look at the children, how they use their facial expressions and words, their finger and hand movements and the other domains of their body language.

In his book *“The New Leaders”* the same author depicts the role of a leader, which I think is totally contextual to the role of the teacher in a primary classroom. Let’s hear what he has to say.

“The affiliate style represents the collaborative competence in action. Such leaders are most concerned in promoting harmony and fostering friendly interactions, nurturing personal relationships that expand the connective tissue with the people they lead. Accordingly, affiliate leaders value downtime in the organizational cycle, which allows more time to build emotional capital that can be drawn from when the pressure is on.

When leaders are being affiliative, they focus on the emotional needs of the employees even over work goals. The focus makes empathy – the ability to sense the feelings, needs and perspectives of others – anchor fundamental competence there. Empathy allows a leader to keep people happy by caring for the whole person – not just the work tasks for which someone is responsible. A leader’s empathy makes the affiliative approach a booster of morale par excellence, lifting the spirits of employees as they trudge through mundane or repetitive needs.”

This wonderful relationship between the leader and the follower (employee) is very much true even in the case of the relationship between the teacher and the taught. In primary classes especially the relationship between the teacher and child not only reassures trust, confidence, possibilities and achievements but does create a wonderful climate for effective learning.

Can our school heads initiate some programs that will bestow the above qualities with our teachers in the primary classrooms?

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The functional space of any individual is normally classified into four different zones:

- Intimate zone
- Personal zone
- Public zone
- Social zone

It has been observed that in the process of growth and development an individual normally expands his zone of function. He or she normally goes on expanding the functional space with age, learning and types of functions and work. At the primary level, when the children are young, as they tend to be dependant largely, as they are in the process of expanding their functional domain, as they have a greater fear for the unknown than the aged, they tend to enjoy relationships in the intimate zone. This infuses a sense of confidence and recognition, ensures a reassurance to their moods and mental models.

Teachers **should** understand the significance of Intimate Zone

What can they do?

- A gentle touch
- A kind pat
- Holding the palms
- A kind finger touch on the cheek
- A loving hug when called for
- Kneeling or leaning towards their place or position
- Allowing proximity

Teachers can think of a large number of ways depending upon the situation. It is equally important that such actions are universal to all the students and not selective and biased. Any overemphasis or prejudiced action would lead to negative results or create a disharmony in the classroom.

Experiments and Research has shown that operating in the intimate zone among the primary students has yielded the following results:

- Children who are slow learners improve their performance because of reassurance

- Children with learning disabilities find an anchor and hence improve their confidence levels and thus their performance
- Children with emotional hangovers enhance their comfort levels and are more happy
- Children who feel rejected at home find a pathway to become inclusive
- Children with poor communication skills improve their levels of communication
- Children who are introverts and withdrawn for various reasons tend to open up
- Children with talents and gifted learning competencies find an acknowledgement to parade their skills
- Visual children get empowered with the proximity of their teacher
- Auditory children hear their teacher in proximity and hence are comfortable
- Kinesthetic children enjoy the intimacy of the teacher and become proactive.

What more is required in a classroom?

But please do remember, operating in the intimate zone with negative feelings, emotional tantrums and prejudiced emotions has a totally negative impact.

Read the following words carefully:

“As Swedish researchers found, merely seeing a picture of a happy face elicits fleeting activity in the muscles that pull the mouth into a smile. Indeed, whenever we gaze at a photograph of someone whose face displays a strong emotion, like sadness, disgust or joy our facial muscles automatically start to mirror e other’s facial expression.

This reflective emotion opens us to subtle emotional influences from those around us, adding one lane in what amounts to a brain-to-brain bridge between people. Particularly sensitive people pick up this contagion more readily than most, though the impervious may sail through even the most toxic encounter” (social intelligence: Daniel Goleman)

While teachers should focus on building brain-to-brain bridge, they should avoid toxic encounters. Shouldn’t they?

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How does effective communication help the child?

Communication is very vital to holistic growth. Facilitating communication at the formative level is important. This helps in developing right attitudes towards people and events.

A child facilitated with the communication skills would be able to:

- Convey personal needs
- Speak fearlessly
- Speak assertively
- Develop vocabulary
- Develop language skills
- Give an expression to imagination
- Express creatively
- Handle emotions meaningfully

Further, effective communication facilitates the following:

- Elimination of fear
- Development of verbal skills
- Development of non-verbal skills
- To enhance the self-confidence
- To develop the self-concept and image
- To empower thinking skills
- To improve Interpersonal skills
- To strengthen Intrapersonal skills

Any conversation between the teacher and the learner has to be positive, mutually supportive and constructive. It is claimed that words are nothing but electromagnetic vibrations that impact one's mind and subsequently the emotions and the behaviour. The children at the formative stage quite often reflect the words, actions, behaviour and style of the teacher. Rather, they 'mimic' them.

Commenting on the conversation between two persons, Daniel Goleman observes in his book *“Social Intelligence”*:

“As two people are engrossed in the conversation, their bodies’ motion seems to track the very pace and structure of their speech. Frame-by-frame, analysis of pairs talking reveal how each person’s movements punctuate the conversation’s rhythm, head and hand actions coinciding with stress points and hesitations in speech.

Remarkably, such body-to-speech synchronies occur within a fraction of a second. As these synchronies interlock while we speak with someone, our own thoughts can’t possibly track the complexity of the dance. The body is like the brain’s puppet, and the brain’s clock ticks in milliseconds, or even tinier microseconds- while our conscious information processing, and our thoughts about it, lope along seconds at a time.”

It is quite important that the teachers should enter and remain with a positive frame of mind in the classroom, quite receptive to the words and emotions of the learner and respond appropriately. It is equally important that the body language of the teacher should be in synchrony with their structure of words.

Continues, Daniel:

“Any conversation demands that the brain make extraordinary complex calculations, with oscillators guiding the continuous cascade of adjustments that keep us in synch. From this micro-synchrony flows an affinity, as we participate in a slice of our conversational partner’s very experience. We so readily slide into a brain-to-brain link in part because we’ve been practicing this silent rhumba all our life, since we first learned the basic moves.”

Our teachers need to understand that they should move towards establishing brain-to-brain link to develop the affinity with the learner.

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Enable thinking skills

Educational psychologists believe that it is important to facilitate neuron networking in the brain. It is believed that the greater the networking of neurons the greater is the ability to think. Therefore, the teachers should facilitate development of thinking skills. Some of the strategies by which teachers could enable the same are:

- Facilitate play
- Facilitate observation
- Facilitate listening
- Facilitate reading
- Facilitate questioning
- Facilitate divergent thinking
- Facilitate lateral thinking
- Facilitate conversation
- Facilitate creative arts, poetry and theatre skills

Very often the “right answer syndrome” of the teachers inhibits the thinking process of the students.

The development of thinking skills among students would help in development of:

- Rational thinking
- Objective outlook
- Analytical approach
- Flowcharting of ideas
- Development of thought structures and frames

- Ability to restructure and reorganize thoughts
- Critical review of concepts and statements

The thought patterns of the children in the formative years are greatly influenced by the physical and the social environment. The family has an important role to play in shaping the thought patterns in these years.

Mostly thinking patterns of young people are influenced by the following:

- Thought patterns of parents
- Thought patterns of teachers/ schools
- Thought patterns of the society
- Impact of media (induced thought patterns)

All the above might lead to linearity in thinking, polarization in thinking, subjectivity in thinking and lead to self-centered thinking. The children in the formative years become victims of external influences and very often miss the ability to objective thinking. It is therefore important schools do develop exercises in the objectives listed above.

Emerging consumerist tendencies have a serious impact on the mind and psyche of the learners at the formative stage. They become easy victims to temptations and yield themselves to unwarranted social and peer pressures thereby landing themselves in avoidable problems and situations.

The inability to control thoughts, the inability to monitor and regulate them slowly leads to the destruction of the personal profile of the learner. He becomes dependant on others, the society and external conditions. Exercises like yoga and meditations seem quite important at the formative years of life.

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Why Teach Rhymes?

One of the most established modes of content delivery at the formative stage is rhymes. The rhymes normally consist of a caricature of words articulated in a manner that they convey one or more simple meanings which fulfill one of the following objectives:

- Adds value to a learner's physical, mental or emotional stature
- Enables building a belief system
- Brings about an awareness related to a thing, an event, a place or a process
- Encourages fantasy and imagination,
- Familiarizes the learner to certain courses of actions or events in the life process.
- Explains the structure of relationships between people, events, systems or structures

The objectives are realized through a delivery system which contains a combination of the following:

- Design
- Meter
- Rhythm
- Action
- Expression

Each of the above tools has a very significant impact on the learning process. Teachers need to apply their mind in understanding the role of each of the above tools in teaching of the nursery rhymes.

Design

The design of each of the nursery rhymes is intended to convey a specific meaning to the learner. They help in shaping, nurturing and facilitating a structure, a thought or a mental frame. Sometimes they aim at providing a motivation, a curiosity and propose an action. Sometimes they are aimed at integrating the cognitive, the affective and the psycho-motor domains of the learning process.

Let us analyze a few situations:

If one would examine the design of the rhyme *“Twinkle, Twinkle Little Star; how I wonder what you are....”* one would realize the two major implications of the above line – one the child is exposed to a process of curiosity, a process of wondering.

The sense of wonder is very significant to human thought process. It kindles a sense of curiosity, motivation to understand the unknown, a sense of appreciation, and a spirit of inquiry.

When the child looks at the star later in the night, he or she spreads the wings of curiosity by looking at the star, counting, one two... and finally the mind wanders here and there counting the innumerable number of stars. The process of wandering of the mind starts. Remember *“wondering and wandering of mind is fundamental to creativity”*

Similarly, if one would analyze the rhyme *“Mary had a little lamb”* one would see the following objectives being conveyed:

- Caring of the animals
- The process of growth
- The relevance of wool
- The need and capacity to share
- The significance of animals in the biosphere

Teachers who understand the above and similar designs of the words in the rhymes would be able to contextualize the rhymes and convey the objectives in an impressionable manner. Teacher need to understand the life and spirit of the words and should be able to convey them in a suitable manner. For achieving this, they take help of several other tools like music, dance, role-play, dramatization etc.

Can our nursery teachers examine some of the nursery rhymes and come out with a plan indicating their objective and strategies for achieving them?

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More about Rhymes

Meter

Meter in nursery rhymes has a significant role in developing the mental skills of the children. Meters in rhymes do not simply indicate an organization of a poem, but they facilitate the child in the following:

- Logic
- Order
- Sequence
- Measurement
- Voice modulation

The children would be in a position to apply these skills in other situations, link the skills in other contexts and can use these for extended imagination. Quite often these are also linked to certain psycho-motor behaviour of the learners. They help in strengthening Stimulus-Response bonds.

Understanding and appreciation of meters at the foundation level will help them to write poetry, to play music and emerge as good composers.

Teachers should use the concept of meters effectively in the classroom to facilitate the children to be creative and innovative. The students can be asked to write their own rhymes using meters and sing or play.

Rhythm

Rhythm in the rhymes provides an excellent bridge between cognitive, affective and psycho-motor skills. For example, rhythm in words can be linked to rhythm in feelings or emotions and rhythm in actions and body language. Rhythm helps in understanding order, logic, modulations in words and actions, differences in styles of communication, management of change, management of patterns etc.,

While teaching the rhymes, teachers should focus on the following:

- Whether the children use rhythms in an appropriate manner so that there is effective bridging between the three domains
- Whether they are repeating the rhymes in a mechanical manner without understanding or applying the effects of the rhythm

Teachers should pause wherever necessary and provide adequate body language expressions so that the learners are able to observe and use the body language patterns to convert verbal systems to emotional expressions in tune with the body language.

One may be aware that rhythms are often used in physical exercises. Teachers of nursery units can use similar techniques in classrooms and play fields to provide appropriate experiences.

Actions

In almost all cases, a nursery rhyme is taught along with actions. Actions include:

- Movement of hands
- Movement of body
- Movement of eyes
- Movement of legs

Such movements are always done to convey a meaning, cause an experience and transfer the meaning of words into body language. This helps in cognition, understanding, knowledge transfer, mind-body synergy, left-brain/right brain coordination and essentially in an effective brain-based learning.

Actions help children in enhancing their:

- Alertness
- Response level
- Timing sense
- Periodicity
- Coordination
- Teamwork (when done in a group)
- Transfer of mental models to physical movements

Teachers should ensure the following whenever they use actions for conveying meanings:

- Actions convey correct meanings
- Actions generate positive responses
- Actions do not convey negative feelings/emotions
- Actions do not condemn/ ridicule any person/matter/event
- Actions are simple and can be easily followed

- Actions are learner friendly.
- Actions are relevant for the appropriate age group
- Actions are place and space sensitive

Can our nursery teachers analyze some of the nursery rhymes they teach in the context of some of the above inputs and structure their pedagogy appropriately?

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Rhymes and Emotions

The formative years are very significant in building the emotional intelligence of the child. The learning styles in classrooms should not only help in building the effective emotional intelligence of the child, but should support in understanding, appreciating and managing emotions.

Normally the nursery rhymes generate only positive emotions. There are no major evidences to indicate the contrary. The following emotions are usually on display through nursery rhymes:

- Sense of wonder
- Sense of humor
- Sense of appreciation
- Sense of fear
- Sense of doubt
- Sense of compassion

Development of goodwill to the fellow-beings, pets and nature are often indicated through the nursery rhymes.

Teachers should use these emotional inputs to enhance the emotional intelligence of the learners. This will help not only in building a positive profile of the learner but would help in shaping and consolidating values among them.

Opportunities should be found for the following:

- Building confidence and trust among the peers
- Enhancing the level of tolerance
- Show concern for others needs and feelings
- Resist violent expressions
- Respect for traditions and values

The transaction of the rhymes in the classroom is nothing but building a communication profile between the teacher and the student through the medium of words, music and actions. How does it impact a child?

Daniel Goldman observes **“All communication requires that what matters for the sender also matters for the receiver. By sharing thoughts as well as feelings, two brains deploy a shorthand that gets both people on the same page immediately, without having to waste time or words explaining more pointedly what matters are at hand.”**

Here is an interesting experiment which Goleman records:

Six Rhesus monkeys have been trained to pull chains to get food. At one point a seventh monkey, in full view of others, gets a painful shock whatever one of them pulls for food. On seeing the pain of that shocked monkey, four of the original rhesus monkeys start pulling a different chain, one that delivers less food to them but that inflicts no shock on the other monkey. The fifth monkey stops pulling any chain at all for five days and the sixth for twelve days – that is, both starve themselves to prevent shocking the seventh monkey.

Teachers should note that the words and actions have a significant impact on the learning minds especially at the formative stage. There are many recorded events about the emotional behaviour of children consequent to the impact of the words and actions of both the parents and teachers. Use of words and actions that lead to insult, emotional injury, differentiation, discrimination, isolation, offence and others could leave a long term or even a perennial impact on the emotions of the children.

A lot of thought has to go into the selection of rhymes, their wording, and relevant actions. They should help in building positive emotions and positive environment for healthy development of mind.

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The art of Story Telling

Stories influence the children. Teachers enable effective influence on the children.

Says Sri Aurobindo **“Influence is more important than example. Influence is not the outward authority of the teacher over his disciple, but the power of his contact, of his presence, of the nearness of his soul to the soul of another, infusing into it, even though in silence, that which he himself is and possesses. This is the supreme sign of the Master. For the greatest Master is much less a teacher than a Presence pouring the divine consciousness and its constituting light and power and purity and bliss into all who are receptive around him.”**

Story telling is an essential learning style in the formative years of schooling. As such, even in the pre-school stage the concept of story telling is used by the parents or the grand parents at home. The stories have a significant impact on the knowledge domain of the learner and have a long-lasting effect on the psyche and the mental framework of the learner.

The stories have the following advantage:

- It invokes curiosity
- It provides motivation
- It fires the imagination
- It helps in building mental models
- It increases vocabulary
- It familiarizes with communication skills
- It helps in establishing linkages with communities
- It facilitates in building concepts and values
- It helps in passing on a heritage
- It enlarges vision
- It gives a meaning and reference to several social actions a system.

Features of storytelling:

1. Story telling is basically an interactive process. There is a direct interaction between the teacher and the child when the event takes place. The learner responds both to the verbal as well as non-verbal communication of the teacher. The responses of the child on this occasion is generally:
 - Emotional
 - Immediate
 - Spontaneous

The following aspects of the storyteller have an impact on the listener-

1. Words

2. Tone

3. Speed

4. Position

5. Eye movements

6. Body movements

2. Story telling is not a passive process. On almost all occasion, the listener receives the story in an active manner and formulates mental images, visions and stages the play in his mind's screen. In this process the following things happen:
 - The learner creates his own images
 - The learner formulates his own actions
 - The learner directs the story in the way that is unique to him or her.
 - The learner makes his own environment for the events
 - The learner develops his own costumes.

All these happen according to the belief systems of the learner, psychological profile and environment of the learner and in a manner that is most desirable and appealing to him or her. Thus, the learner becomes a co-creator of the entire story.

3. Story telling is most often personal and subjective. The storyteller articulates the story in a manner that is more appropriate to him. In this process he adds value that is unique to him. It almost becomes his or her personalized communication rather than that of the author of the story. He or she tends to internalize the story, add personal experiences and depict it in a more human form than is envisaged.
4. Story telling is often a spontaneous process. The storyteller, when motivated to tell a story becomes emotionally committed to the content and process of the story and intends to communicate the essence of the story in its emotive form. He tends to add value,

structure the process and design a delivery mode that would be very special. In this process, he seeks to relate to the listener and seek his full attention.

There is more on the art of story telling in primary classes. Our primary school teachers need to employ this skill much more meaningfully in the classroom to get the desired results. -

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The impact of stories on children

The stories impact the mind and the psyche of the children in many ways. The type of impact depends on the type of the stories told. There are many types of stories and many styles of storytelling.

At the pre- school stage, parents and grandparents normally tell stories which are related to:

- Birds, animals and pets
- Kings and kingdoms
- Fairy tales
- Epical stories
- Comics and humors
- Adventure stories

In most cases the objective of such stories focus on:

- Showcasing belief systems
- Passing on a tradition or a heritage
- Communicating a moral, ethics or values
- Explaining conflicts and their management
- Developing a sense of compassion
- Staying away from a wrong path and choosing righteous path
- Success of Truth over Falsehood

Children listen to stories very attentively as it endears their curiosity and provides food for thought. Children tend to develop mental imageries and models of the experiences provided in the story an often personalize these imageries. The knowledge provided through story inputs gets easily transferred to the affective domain and is converted into experiences. Such experiences could have a highly positive or a negative impact on the psyche of the learners. Hence it is important that the process of story telling is articulated in such a manner so that the objectives of the story are correctly communicated to the learner.

The stories can provide the following inputs in the minds of the children:

- Fear
- Anxiety

- Hatred
- Sympathy
- Animosity
- Violence
- Adventurism

There could be many other emotions too. It is important for us to analyze some of these emotions – their cause and effect.

Fear

There are many case studies which indicate that children develop a sense of fear on hearing a story narrated by the parents, grandparents, peers or teachers. In certain cases, the context and content of the stories may not be for the appropriate age group. Especially if some senior children are narrating stories of adventurism and when they are heard by the younger children, they tend to develop a sense of fear. This may be born out of unknown, fear of unfamiliar things or threat.

In certain cases, this fear leads to:

- Loss of sleep
- Bad dreams
- Screaming in the night
- Bed wetting
- Psychological trauma
- Sense of withdrawal
- Unintended violence

Some of the inputs of stories which may lead to fear could be:

- Description of giants or negative characters
- Description of dastardly weapons
- Description of imaginary animals/beasts
- Description of violence
- Description of separation, hunger or poverty
- Description of death
- Narration of mystical lands
- Narration of places or scenes unfamiliar to the listener

There could be several other inputs which may lead to emotional disturbances. We will examine them in the forthcoming issues. Keep reading!

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The feelings of fear, anxiety and story telling

We have seen in the last issue that several different types of feelings can be invoked on the young minds through story telling. It is claimed that fear is the most primordial feeling of the human brain. The developmental psychologists of human brain say that the brain is not designed for learning but for survival. Hence any idea or thought or feeling that would provoke fear in the minds of the learners at the formative stage is something which needs to be closely examined. There are several case studies of students who have been either marginally or extensively affected due to hearing or seeing a story on the television screen.

The following points needs to be kept in mind in story telling:

- Stories should be appropriate to the age group.
- Their design should be simple and effective
- There should be no over-emphasis on characters or events to enhance their emotional content
- The delivery should be emotionally moderated if not neutral.
- The emotional participation of the learner has to be gauged periodically whenever possible.
- The objective has to be clarified to show its positive intent.
- Story should not be focused at one individual or select few in a group.
- They should not personalize the events or the content on any single child which could disturb the holistic emotional balance of the class.
- Negative connotations of the story should not be overplayed.

Sometimes students tend to project threat or an unpleasant situation on their self and suffer. Hence teachers should adopt such facial expressions and body language which would not kindle fear in the minds of the students

In addition to the fear the students may also develop a sense of anxiety on hearing, reading or seeing a story. We will now see the different types of anxieties the children develop in this process.

Anxiety

Many children become victims of one or the other kind of anxiety syndromes. Stories invoke the curiosity of the listeners and sometimes induce anxiety in the process of development of the story and its progress. This is quite a natural feeling. This cannot be considered as a negative feeling.

However certain events, occurrences or narrations lead to a sense of anxiety. This could be due to some of the following reasons:

- There are threats to a popular character in the story to which the child is fascinated.
- The popular character is in deep trouble and facing a crisis. The child empathizes with the character.
- There are narrations of natural calamity or accidents. The child personalizes such events
- One or the other character is in penury and facing death. The child either empathies or personalizes with the character.
- There is an acute chaos in the place of narration and the child becomes tense.
- There are description of violence and attack on men and materials. The child is disturbed by the negative environment.
- The child character in a story is orphaned or is in misery. Again the child may empathize or personalize the character

There could be several other modes by which a sense of anxiety may be imported into the minds of the children

What should the teachers do in order to ensure that the children do not suffer anxiety resultant to the mental models they have developed on hearing a story?

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Managing anxiety in story telling

Teachers need to keep the following in mind while articulating a story:

- While it is important that a variety of emotions need to be displayed in the pedagogy involved in story telling, such of those inputs that would infuse a sense of anxiety could be moderated and modulated.
- Over-stressing negative sentiments like those of calamities, disasters, pestilence and penury should be avoided. While a realistic picture has to be projected, there could be a shift towards a database rather than emotions to nullify the build up of negative emotions.
- The feeling of anxiety in the minds of most children gets easily expressed through the following:
 - Restlessness
 - Inability to hold to a seat
 - Visual expressions
 - Facial expressions
 - Sweating
 - Need for physical relief
 - Lack of concentration
 - Lack of balance in emotions
 - Aggressiveness

Teachers should be able to identify in a group one or a select group of children who yield to symptoms of anxiety and handle them appropriately.

Says Dr. N.S. Srinivasan and Dr. G. Balasubramanian in their well-researched book “**Brain Re-engineering**”:

“Stress is often considered to be an outcome of the malfunctioning of the signaling circuit. Compelling an individual or oneself to respond in a stereotyped manner to certain external stimuli has always been the bane of human understanding. Without inquiry into the nature of the input necessary to trigger a specific response for a particular individual, generalizations are often propounded and blindly accepted. For example, before dyslexia was discovered, many students were termed dumb, if they did not have language

comprehension skills. The fact is that a dyslexic could be as intelligent, if not more, as in the case of Einstein, than a student with excellent language comprehension skills.”

Some of the following methods could help in building relief systems in the minds of children:

- Questioning children on the characters that fascinate them and the reasons, therefore.
- Questioning children on the events/characters/parts of the story that has been disliked by them and finding the reasons.
- Initiating a peer discussion about the story in the classroom
- Allowing children to play different roles to correct distorted mental models if any
- Enacting such parts of story in the classroom by a group of children which would have promoted anxiety so that they are related to certain realities.

Some of the above might help in dislodging misconceptions about persons, characters or events and to understand them in their right perspective. They help in building empathy, establish rapport and relationships and sense the needs of others and develop the urge to help those who are in need.

Says Daniel Goleman in his book “Social intelligence”, **“In the design of the brain, winning features are shared among various species. Human brains have vast tracts of well- proven neural architecture in common with other mammals, especially primates. The similarity across species in sympathetic distress, coupled with the impulse to help strongly suggests a like set of underlying circuitry in the brain. In contrast to mammals, reptiles show not the least sign of empathy, even eating their own young.**

Although people can also ignore someone in need, that cold-heartedness seems to suppress a more primal, automatic impulse to aid another in distress. Scientific observations point to a response system that is hardwired in the human brain – no doubt involving mirror neurons- that acts when we see someone else suffering making us instantly feel with them. The more we feel with them, the more we want to help them.”

After all, the objective of education is, to empower the future citizens with those human qualities which will help them to co-exist with their fellow-beings with comfort and Peace, to empower them with the abilities to reach out the needy..

Story telling has a lot of meaning in the classroom. Do you agree?

G. Balasubramanian

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Hatred, Animosity and violence in story telling

Hatred

Hatred could usually be borne out of fear, non-compatibility, annoyance, differential value systems or due to extreme violent provocations. Evidences do exist when children develop a sense of hatred against certain things.

Some normal situations are:

- Hatred against certain characters
- Hatred against certain events/practices
- Hatred against classmates
- Hatred against teachers
- Hatred against subjects
- Hatred against places
- Hatred against neighbours / relatives

Statements of the following kind are not uncommon among children:

“I hate this character because he always fights”

“I hate his killing animals”

“I hate Shyam because he always tells ghost stories”

“I hate this teacher because her stories are not interesting”

“I hate this book for it contains only stories which describe killing”

Some of these statements of the students are quite genuine and are borne out of certain emotional experiences. Quite possibly, the way a story is narrated or presented might create a positive or a negative relationship with the storyteller.

Teachers should take care that during presentation of the story:

- They do not give excessive focus on issues that could promote hatred against individuals/communities /places
- They offer necessary explanation to justify the role or action of the characters in the context of the story
- They should present the story value rather than extending it to real time situations or personalizing them.
- They should present a balanced picture rather than being judgmental, avoiding value judgments.
- Stories with themes that promote communal hatred, parochial interests should be avoided.

Animosity

Many children pick up qualities of envy, jealousy and other negative feelings either from the content or the theme of the story or may be due other allied reasons. Teachers need to ensure that rivalry of one kind or the other should not develop among children.

Quite often such feelings are developed in the minds of children affected by some complexes. Children suffering from some challenges or inadequacies also become victims to such feelings. Children having disturbed family backgrounds or exposed to certain psychological trauma also develop such feelings.

A few reasons for these could be:

- Children identify themselves with some affected characters and tend to take revenge as detailed in the story
- Children associate certain events in the story with their personal life events and follow similar actions as in the story
- Children project certain conflicts in the story with their own conflicts
- Children do not bear injustice done in the story and develop animosity against any of the peers who justify it.

Animosity is exhibited by the students through several ways:

- Use of abusive language
- Use of aggressive postures
- Isolating oneself from the company of select people
- Bullying and nagging
- Physical assault

Teachers should adopt strategies in story telling that would not promote animosity. The following strategies can be thought of:

- Discouraging children from personalizing characters/events
- Adopting role-play technique to provide correct projection of characters/events
- Highlighting the negative effects of feelings like anger, jealousy etc, leading to fights among people
- The reward for patience
- The impact of negative feelings on mind and health

Violence

There is increasing evidence to show that stories based on violence do leave an impact on the minds of the children. Films, T.V serials etc., depicting violence have an immediate impact on the psychic status of the child and they tend to follow some wrong examples of characters depicted in the films. In so far as stories are concerned, there is lesser evidence. Nevertheless, it is important that teacher should avoid narrating such stories which would kindle a sense of violence in the young minds. It is often stated that “Wars start in human minds”. Hence it is important that the mental health of the students have to be taken care of.

In most cases violent tendencies are seen due to the following reasons:

- Inability to tolerate
- Absence of patience
- Unhealthy comparisons
- Greed and excessive possessiveness
- Jealousy
- Manifestation of ego
- Inadequate and improper communication

Thus, one may find that story telling is a unique art and calls for employing a lot of thoughtfulness, understanding and appreciation of the psyche of the learners. Teachers need to plan adequately and use the pedagogy effectively to get the desired results.

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Using Theatre in classrooms

Increasingly Theatre is considered as a powerful medium of enhancing the quality of pedagogy and making communication effective. Considered most appropriate method for meaningful and contextual learning, theatre can be used by an innovative teacher in a classroom to transact lessons.

What are the advantages of theatre in classrooms?

- It provides visual, auditory and kinesthetic inputs
- It provides a meaning and context to learning
- It makes a direct impact and a virtual learning experience
- It is interactive
- It upholds and facilitates emotional communication
- It gives a sense of time, place and dynamics
- It gives an understanding to social and cultural contexts
- It helps in portraying values, value conflicts and resolving conflicts.
- It keeps learning highly motivated.
- It facilitates teamwork and thus learning to live together.

There are several other direct and indirect benefits of a theatre in the classroom.

When do we start?

The idea of a theatre can be started right from the Kindergarten classes. A lot of stories can be enacted in the form of plays.

The enactment of stories in the form of a play has several impacts on the minds of children.

- The children portray the pictures of animals and people in their minds
- They try to understand the behavioural patterns of the characters enacted.
- They try to understand the environmental issues related to the characters
- They appreciate the strength and limitations of the characters
- They live the characters in the play and hence develop empathy

- They tend to develop several stimuli-response patterns which help in developing their personal psycho-social profile

The theatre helps in developing several dimensions of emotional intelligence in the minds of the learners. They include-

- Self-awareness
- Self-confidence
- Agility
- Self-regulation
- Critical thinking
- Teamwork
- Sharing and caring
- Sense of responsibility and ownership
- Empathy
- Reflection and correction

As a strategy, theatre helps in meeting the needs of all types of learners - visual, auditory and kinesthetic. It motivates, inspires and sustains the attention. There is a synthesis of the play of colours, words and actions. It facilitates lateral and analytical thinking.

Can we think of a few lessons in the primary classes which can be taught through theatre? May be the same could be each one of us could communicate such experiences to others for mutual sharing?

Let's keep learning!

G. Balasubramanian

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Using Theatre in classrooms

How can teachers effectively use this methodology?

A classroom can be converted into a mini theatre. The teacher can select a story and initiate the following process:

- Discussion with children how they would enact the play
- What are the various roles
- Why and how each role is important to the success of the play
- Who will play which character and why
- What are the expectations of the character
- What are the emotional ingredients with the character
- How each role has to synchronise with each other in term time and place
- What are the skills involved in playing the role
- How body language can be effectively used for appropriate communication

Several important messages can be communicated to the students through theatre. They include:

- Value statements
- Morals
- Environmental concerns
- Constitutional rights and obligations
- Fundamental duties
- Human dignity
- Issues related to child labour
- Cultural diversities and their appreciation
- Religious tolerance and co-existence
- Relevance of Family and social institutions

How should teachers select stories for the theatre?

- The stories should be simple and have a strong value component
- The stories should be motivational to the appropriate age group

- The stories should provide opportunities for characterization
- The stories should provide opportunities for communication
- The stories should facilitate positive stimuli-response systems
- The stories should be culturally sensitive and contextual
- The stories shall not promote intolerance and aggressive behaviour
- The message of the story should have an impact on the audience

How can teachers effectively use the theatre for the holistic development of the learners?

Teachers should use the concept of theatre for strengthening the affective domain of the learners and to enhance the multiple intelligences of the learners.

Some tips to the teachers are:

1. Pick out the words – nouns, verbs and adjectives for enhancing their vocabulary and promoting the linguistic skills
2. Facilitate the learner to use the words to construct their own sentences, stories and events
3. Use the body language in the theatre to make them understand the meaning, relevance and importance of body language as a powerful medium of inter-personnel communication
4. Use the speed, tone and tools of verbal communication to help them understand the phonetics and other nuances in verbal communication
5. Use the musical inputs in the play – to develop appropriate skills of musical intelligences – Allow them to compose, sing in similar tunes as in the play
6. Use the movement of characters in the theatre – to develop appropriate skills of spatial intelligence – concepts of anchoring and territoriality can be explained and trained
7. Give them opportunity to review the play and make their own reviews and commentaries – so that they develop the competencies of observation, comprehension, assessment and reporting

The concept of theatre can be used to enhance the critical thinking skills of the learners.

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Using Theatre for creativity

Theatre can be used by the teachers for enhancing the creative genius in the child. The teacher has to sit with children and invite their suggestions in the design and execution of the play.

The following areas may be great interest to the children:

- Organization of the stage
- Decoration of the stage
- Costumes for the characters
- Characterization of roles
- Verbal communication skills
- Body language skills
- Anchoring and positioning

Teachers should not think that the children do not have adequate maturity for participation in such things. Even a small suggestion or contribution of a child has to be acknowledged to motivate him to participate in such events with enthusiasm.

During such interactions, children tend to:

- o Fire their imagination
- o Come out with fanciful ideas
- o Think laterally
- o Start dreaming
- o Come out of their shell
- o Communicate with peers
- o Participate in decision making

As theatre provides a synergy between visual, auditory and kinesthetic inputs, it facilitates all children to participate without any hesitation or reservation. They derive a sense of satisfaction, a sense of equity and feel an arousal in their self-esteem.

What kinds of subjects could be taken by the teachers?

For the primary classes teachers should take subjects that relate to:

- Epics and classics that deliver a message
- Historical episodes that provide an insight into the history, promote world peace and universal brotherhood
- Environmental issues that would promote the concept of a healthy living
- Stories and events that would promote social and religious harmony
- Anecdotes that would enhance their emotional intelligence
- Biographies or case studies from lives of eminent people that would reduce aggressiveness and promote the inner strength
- Scientific and technological episodes that would develop scientific temper and scientific aptitude
- Stories from Panchatantra or similar child-oriented stories that would promote critical thinking and decision making

The role of theatres in the process of learning is significant and cannot be underrated as they:

- Eliminate monotony in learning
- Facilitate multi-dimensional learning
- Make learning contextual
- Continually provide newer perspectives to concepts
- Provide inspiration and sustain motivation

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Understanding how learning takes place

Several theories are in place to explain how learning takes place. Each of the theories has something to contribute to explain the process of learning to a large extent, if not holistically. Pavlov's theory of conditioning tried to explain only certain domains of the learning process. Bloom tried to explain the learning from a taxonomical point of view. As one throws more light into the process of learning, more and more mysteries are getting unraveled.

The psychologists and neurologists have been vying with each other to get into the intricacies of the process of learning to offer an explanation that is closer as well as comprehensive to explain the phenomenon.

The studies on the structure and behaviour of the brains seem to offer very striking inputs to understand the process. Unfortunately, much of these do find a place in the curriculum of teacher education to provide them an insight into the entire gamut of research, discoveries and outputs available, which could help them to understand the process of learning from a better and finer perspective.

Theories related to brain-based learning detail the anatomy of the brain and try to show how the various parts of the brain play a vital role in the learning process, memory and its retention, emotions and intelligence, and the idea of multiple intelligences.

To understand the current scenario from a panoramic point of view, one needs to understand the structure of the brain. The brain appears to be a storehouse of billions of neurons! These are the nerve cells where the information interchange takes place. Each neuron has a cell body and is connected to tens of thousands of fiber like structures called dendrites. Dendrites receive information from other neurons.

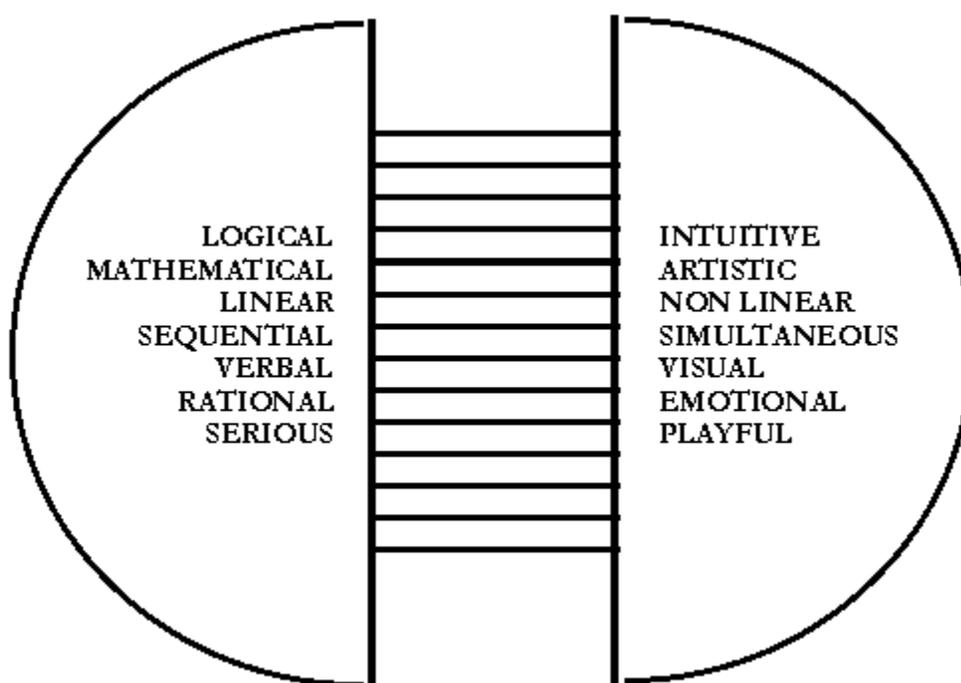
Neurons are also linked to structures called primary axons (long projections traveling inside the brain) and axon terminals from where messages are sent. It is said "A piece of your brain the size of a grain of sand would contain one hundred thousand neurons, two million axons, and one billion synapses all 'talking to' each other." Based on this, it has been observed that the number of possible brain states could be more than the number of elementary particles in the universe! Such is the potential of the brain.

There is also a strong view that the functions executed by the brain are unique to certain places in the brain. Accordingly, neurologists and psychologists claim the differential functions of the brain centres – certain functions characteristic to the left side of the brain and certain other functions characteristic to the right side of the brain.

The functions of the left and right side of the brain identified are as under:

Left brain

Right brain



Accordingly, a set of psychologists believe that all subjects like Mathematics, computing, engineering, science and which involve rational and analytical thinking are nurtured by the left brain; and all abilities like linguistic skills, communicative skills, artistic skills and the like are nurtured by the right brain.

It is also noted that there are certain specific parts of the left brain and the right brain respectively where some of the activities are centered. Accordingly, if there is any injury to any of these specific parts or damage caused the related faculties are badly affected. Experiments and case studies have provided ample evidence to the above arguments.

It is also seen that the two hemispheres of the brain are connected by a band of fibers called the corpus callosum. It is also argued that this provides a link between both the hemispheres and facilitates in synchronizing the activities of both sides. Some neurologists argue that as the brain has the capacity for multiple tasking, it is incorrect to view the functions on a modular approach and the activities have to be in a “holistic manner.” Experiments and case studies have also indicated evidences to prove their point.

Eminent neuro-psychologist Dr. V.S. Ramachandran who specializes in the field of cognition says in his book *“Phantoms in the brain”*:

“As it now stands, a wealth of empirical evidence supports the idea there are indeed specialized parts or modules of the brain for various mental capabilities. But the real secret of understanding the brain lies not only in unraveling the structure and function of each module but in discovering how they interact with each other to generate the whole spectrum of abilities, what we call human nature.”

It is important for the curriculum developers and pedagogues to understand the implications of the outcome of the multidimensional research being carried out in the field of brain functions and their impact on cognition and other learning behaviours. This assumes much greater significance in the context of the fact that much of the brain development takes place at the formative years. Various mental abilities and competencies are built during these years. Teachers need to understand that they need to design their pedagogy appropriately to meet the exact requirements of the learners.

It is also important for the teachers to understand various dimensions of the multiple intelligences and work out strategies of designing the curricular inputs and pedagogy to nurture their development. We would see in the next few chapters how we can address some of these issues at the primary level.

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Theory of Multiple Intelligences

In 1984, Gardner and others established a platform for early school education as Project Spectrum spanning the preschool to early grades of schooling. Their studies indicated “**even students as young as four years old present quite distinctive sets and configurations of intelligences.**”

The facets of MI theory: -

It is relevant at this stage to focus on certain facets of the MI theory of Howard Gardner.

Gardner argues that every learner has an “intelligence profile” which acts as a gateway for his knowing the world. This intelligence profile of the learner is unique and is a distinctive combination of certain intelligences.

Gardner details various intelligences as follows:

- **Linguistic intelligence**
- **Logical-mathematical intelligence**
- **Spatial intelligence**
- **Musical intelligence**
- **Kinesthetic intelligence**
- **Inter-personal intelligence**
- **Intrapersonal intelligence**
- **Naturalist intelligence**
- **Existential intelligence**

Daniel Goleman goes on further in his recent innovations to talk about **Social intelligence**. He says in his book on social intelligence, “**In a less urgent mode our brain’s social circuits navigate us through every encounter, whether in the classroom, the bedroom or on the sales floor. These circuits are at play when lovers meet eyes and kiss for the first time or when tears held back are sensed nonetheless.**”

Thanks to the modern social patterns, we are getting divided more and more. I often used to wonder people in the aircraft, trains, buses, offices and homes tied to an I-pod listening to the music (hopefully!). No quarrels with them. But just see, what Goleman talks about the same:

“The one-person shell created by the headphones intensifies social isolation. Even when the wearer has a one-on-one, face-to-face encounter, the sealed ears offer a ready excuse to treat the other person as an object, something to navigate around rather than someone to acknowledge or, at the very least, notice. While life as a pedestrian offers the chance to greet someone approaching, or spend a few minutes chatting with a friend, the i-pod wearer can readily ignore anyone, looking right through them in a universal snub.”

So, the case and cause for social intelligence (better you read the book to know more!)

With all these intelligences operating in this small “cauliflower like” (not my analogy!) organ that controls our life and activities, we tend to argue that learning has to happen the way we want. We had already seen in our earlier issues the mind-boggling number of neurons existing in the brain. All looking for some activity! But most of us discard the learner saying, “they have no interest”, “they have no motivation.”

Eric Jensen argues **“The unmotivated learner is a myth. The root of the problem is not so much the learner, but rather the conditions for learning that are less than ideal in most school contexts. A great number of kids have been labeled “underachievers”, yet when we stop to consider the amount of motivation it takes just for some under-supported children to get to school, we tend to rethink our labels. Once a learner is in their seat, the teacher’s role is to elicit the learners’ natural motivation. If a learner is severely stressed, they may not be able to process information as efficiently as other learners, but their motivation to solve the problem, you can bet, is strong. Negative behaviours are commonly reinforced in the artificial and unresponsive school environment. And, identifying, classifying, grouping, labeling, evaluating, comparing and assessing learners perpetuates the problem”**

Let us see in the next few issues how we can modify our pedagogy to facilitate the harmonious growth of all these intelligences in the learner!

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We are fifty today!

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Nurturing Linguistic Intelligences

Linguistic Intelligence is defined as having the following criteria:

- A deep understanding of words and a sensitivity to the literal and figurative meanings of words
- Highly developed oral and written communication skills
- Knowledge of grammar rules and when it is appropriate to disregard those rules,
- Sensitivity to the musical qualities and rhythms of words
- Knowledge of the many different uses for language, such as persuasion, information, or pleasure

Linguistic intelligence is very vital component for human survival and human resource development. Language has played the most critical role in effective communication of thoughts, feelings and emotions. It is a medium of displaying the creative faculties of individual. It has acted as a platform for cultural expressions, sustenance and nurturing of diversities. Poetry, Music, literature, art, theatre, science and technology have all been nourished by the medium of language. Thus, the role of language in a societal and global context cannot be underrated.

It is an established fact that children tend to learn as many languages as possible in their formative years of life. In many countries the school curriculum provides opportunities for learning three or four languages. Most children do not find difficulties in acquiring the basic communicative skills in them. However, development of linguistic intelligence is not the same acquiring basic skills in a language.

The linguistic intelligence comprises of:

- Knowing a language
- Envisioning through the language
- Thinking through the language
- Structuring constructs and meanings through the language
- Using and manipulating the language to desired ends
- Using language for functional skills
- Using language as a tool for creativity
- Using language for new linguistic constructs
- Using language as an integrating force with other disciplines of learning

- Using language for development of multiple intelligences
- Using language for development of emotional intelligence

A competent language teacher will use all his/her talents to nurture the linguistic intelligence of the child so that he becomes self-reliant and a successful instrument in social development.

It is believed that language skills are essentially right brain skills. Persons with a strong right brain activity tend to acquire competencies in language and related skills. This cannot be denied or debated.

It is also believed that cross functional activities of the right and left brain produce creative persons who tend to have inter-disciplinary thinking and are able to reengineer their thought patterns and processes to produce remarkable results! No wonder, therefore, the educational process tends to focus on whole brain development rather than selective faculties of the brain.

Linguistic intelligence calls for such cross-functional and inter-disciplinary thinking in language. The management of language vocabulary and skills are extended to other sectors of the brain so that the language evolves in new contexts and new situations. This also facilitates effective use of language in several functional domains of human operation and endeavor.

More to follow.....

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Strategies for developing linguistic intelligence

1. Develop excellent communicative skills

Though it is claimed that only 7 percent of communication is verbal, and the rest is non-verbal, even this small component of verbal communication is quite important in a socially vibrant world. In the instant context – the communicative skills essentially comprises of the four components – Reading, writing, listening and speaking. All these call for significant use of linguistic intelligence.

- Reading enhances linguistic intelligence considerably. It familiarizes the reader with the historical, social, cultural, political and other inputs that have shaped the author and provides an insight into the personality of the author. It empowers the reader to understand and appreciate the thought frame, aspirations, the feelings and the vision of the author. It also empowers the learner to make a contextual meaning in the environment in which he reads the piece of literature. It is said " Reading a book by someone you respect allows some of their brilliance to rub off on you." Hence reading skills should help children to understand and acquire some of the brilliance of the authors.
- Writing skills triggers the imagination of the children and fires their fantasy. Creative writing opens unknown domains of latent skills in the children. It helps to bring out their ability to visualize, conceptualize, conceive, correlate, narrate, describe and illustrate. Creative writing of stories may help in developing logical intelligence. Writing poetry may help in developing musical and aesthetic intelligences. Writing plays may help in developing inter-personal and verbal intelligences. Drawing and painting may help in developing aesthetic and spatial intelligences.
- Listening skills help in developing patience, appreciation of different points of view, analytical thinking, critical appraisal and decision making. Listening skills empower peer interaction and understanding. Listening helps in effective enhancement of intra-personnel intelligence. Listening helps in mental modeling, mental mapping and thought re-engineering.
- Speaking skills help in developing control over vocabulary, effective use of language, structuring new ideas in verbal manifestations, correlating with appropriate body language. Various speaking skills like platform speaking skills, speech making, canvassing, conferencing, convincing, negotiating are essential life skills which could be

learnt by the children while developing their language competencies. All these contribute to the development of linguistic intelligence.

2. Make language learning an enjoyable experience

It is important that the learner acquires an affinity for the language. He does not emerge as a storehouse of vocabulary and a dictionary, but enjoys the meaning, structure, aesthetics and the evolution of language in its multifaceted forms of existence. Teacher has to provide various edutainment inputs to make the learner at home with the language and its constructs

The following points may deserve attention:

- Language learning should move from non-structures to structures
- Language learning should be made experiential
- Language learning should be related to real-time situations
- Language learning should non-linear
- Language could be learnt more through informal modes
- Language could be learnt through interactive methods
- Language learning through peer interactions could be effective
- Language games may be developed for enhancing motivation

Let us see a few more strategies in the next issue.

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Language teaching should be linked to creativity

Creativity and language are possibly first cousins! History is evidence to show that many persons who had a great linguistic intelligence made their way into the history of the world!

Teachers should train children in enhancing their creativity through language competencies. Some simple exercises they could do are:

- Identifying and using adjectives describing –
 - Quality
 - Features
 - Values
 - Events
 - Persons
 - Artifacts

The children should be asked to use the adjectives and construct their own sentences, stories, poems and narratives

- Write features or articles about places or events
 - Detailing structures
 - Describing places
 - Narrating events
 - Featuring people
 - Featuring functions
 - Describing festivals
 - Narrating habitats

- Write reviews, reports and commentaries
 - Reviews of books
 - Reviews of meetings
 - Reports about school programs
 - Commentaries of sports events

- Reports about annual days and other functions
- Organize and conduct interviews
 - Interviews with parents
 - Interviews with teachers
 - Interviews with neighbours
 - Interviews with professionals
 - Interviews with businessmen
 - Interviews with peers

This would bring opportunities for integrating linguistic skills with inter-personnel skills

Teachers could find a large number of avenues and opportunities to motivate, inspire and guide children to engage themselves in activities that would promote their linguistic intelligence

Speaking skills have to be given adequate focus

In globally competitive environment oral communication is becoming increasingly important. Children need to be empowered on various competencies required for speaking.

For example:

- Adequate vocabulary
- Appropriate use of words
- Phonetics
- Intonation
- Toning
- Speed

Apart from the above, children need to be trained on differential approaches to speaking skills.

For example:

- What are platform speaking skills?
- What are debating skills?
- How could they participate in conferencing?
- How will they actively engage in brainstorming?
- What are convincing skills?
- What are negotiating skills?

Many of these skills are used in several managerial contexts. Sometimes teachers tend to feel that they can be taken care of at a higher level. But one must realize that many of these skills are acquired at the formative level itself. Hence it is better to familiarize the learners with these skills.

It must be noted that mere verbal communication alone is not important, but it should go hand in hand with the non-verbal communication or the body language.

Teachers could find excellent opportunities in classrooms to organizes mock scenarios where the students could come and practice.

Let us see more in the next issue

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Listening skills and Linguistic intelligence

In a fast society, people are slowly losing the listening skills. Listening skills are very important to develop a holistic personality.

The following points need to be brought to the attention of the children:

- Listening is different from hearing
- Listening calls for attention
- Listening needs concentration
- Listening is accompanied by understanding
- Listening is not indicative of an agreement to other's views
- Listening does not amount to submission to others
- Listening helps in appreciation of others point of view
- Listening enables critical review and judicious decision making
- Listening helps in eliminating misconceptions

Teachers should train the children in the art of listening.

Listening helps children in

- Developing mental models
- Drawing mental maps
- Thought articulation
- Thought navigation
- Enhancing the fertility of imagination
- Acquiring motivation
- Internalizing experiences

How can we organize exercise which would enhance the listening skills of the students?

- Read the prose contents and ask the students to listen carefully
 - Watch their attention
 - Ask them to listen to and identify important/difficult words
 - Ask them to identify words which impact the content of the prose
 - Ask them to comprehend and say what they have listened to
 - Ask them to respond to issues in the content as and when they listen

- Read a poetry and ask the students to listen carefully
 - Watch their attention
 - Observe how their moods respond to the wordings and meaning of the poetry
 - Observe their emotional responses
 - Ask them to listen to words that bring aesthetics to the poetry and record them
 - Ask them to observe the rhythm and meter and respond meaningfully

- Ask the students to read a play when others would listen carefully
 - observe how the students react to various verbal expressions in the play
 - Ask how they would respond to a particular expression or statement of a character
 - Ask them to judge the character in the play as they listen and make observations
 - Ask them to identify the place, the time, the venue and the environment of the scene from the words expressed by the characters
 - Ask them to listen to the statements and predict the future direction of the story or the play

Well, for an imaginative teacher every single tool (textbooks, television, library books and others) in the classroom can be converted into instruments for empowering the linguistic intelligence.

Linguistic intelligence is a very strong life skill resource and would help the learners in articulating and managing their life in a meaningful manner.

If you have anything to add, contribute and suggest you are welcome!

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Developing Logical intelligence in students

The rationale, analysis, correlation, continuity and a large number of other skills are required for survival and development. Basically, a left-brain activity, it has its stakes in all other forms intelligences, as the absence of logic defeats the basics of all other forms of intelligences. Though the brain has been bestowed with enormous capacity for logical thinking, it appears important that we nurture and nourish these skills. In the formative years of learning, the students need to be trained to understand the logical skills and acquire necessary competencies in the same.

The formative years yield themselves to innumerable opportunities for learning and consolidation of logical intelligences. Teachers can identify a wide spectrum of curricular and co-curricular activities which would nurture and enrich the logical intelligences among the learners.

Usually in the pre-primary stages, the schools tend to provide opportunities for informal learning through participative and interactive games and learning situations. The focus is to make learning an enjoyable experience and to offer certain scope for experiential learning that would go to strengthen the emotional intelligences.

Though schools do not tend to formalize learning through structured textual materials, parents tend to provide textual support to their wards to familiarize with structured learning.

Teachers would do well to focus on some of the following areas which would help in nurturing and nourishing of the logical faculties among the children:

- Skills of Numeracy
- Skills of sequencing
- Skills of correlation
- Skills of comparison
- Skills of organization
- Skills of rational thinking
- Skills of analysis
- Skills of lateral thinking
- Skills of parallel thinking

- Skills of differentiation
- Skills of geometry
- Skills of graphics

In order to facilitate acquiring the above skills, teachers should take such materials, objects and situations which are learner-friendly, and which do not threaten the process of learning.

They should normally use the following:

- Toys and play way materials
- Games and physical exercises
- Objects detailing flowers, fruits and trees
- Objects detailing birds, insects and animals
- Objects that would establish relationships
- Objects that are used familiarly at home
- Designs, structures and patterns

All subjects yield themselves to develop logical intelligences. Teachers need to plan out strategies to provide cross-functional and inter-disciplinary linkages to strengthen the concepts of logical intelligences

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Logical Intelligence through Language teaching

The language teacher may conveniently use the following tools for developing logical skills:

- Using letters for construction of new words
- Using phonetics to identify similar words
- Bringing out the meaning of two words with similar phonetic designs
- Bringing out different meanings of the same word
- Building word puzzles
- Using words for developing different types of skills
- Relating words to habits, mannerisms and address relationships
- Using words to address protocols
- Using words to make requests, to issue orders and to make observations
- To use words and sentences to make correct and logical observations

Teachers should motor skills in the formative years of learning to bring home the logical perceptions.

It is important to use:

- Fingers
- Palms
- Arms
- Legs

They help in establishing connectivity and relationship. In addition, they following find immense use in developing logical patterns in the minds of young children:

- Tunes
- Rhythms
- Patterns
- Structures

To promote logical thinking and establish concrete as well as abstract connectivity, teachers shall use different types of inputs to cater to the needs different types of learners. The inputs can be classified as:

- Visual
- Auditory
- Kinesthetic

Teachers should help in developing relationships between concepts and visual inputs, concepts and auditory inputs and concepts and kinesthetic inputs. It is also important to facilitate integrated thinking by a combination of all the three types of inputs

Students need to have a good logical thinking if they have to write an essay and develop a concept, write a speech to be delivered in a classroom or a seminar, make a presentation before an audience. Language teachers can facilitate in the development and interlinking of linguistic and logical intelligences.

Role play and theatre offer enormous opportunities for developing logical thinking. Devising the background of scenes, costumes of characters, positioning of characters in places, integrating the concepts of time and space, geographical and cultural contextualization of the scene, the costumes, the words and the actions – all require application of a logical thinking.

Story writing, editing, direction – require a logical mind.

Can our language teachers take a few steps to make their classrooms interesting and vibrant by adopting some of the practices suggested above?

More on logical intelligence to follow...

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Teaching logical intelligence through Mathematics

Teachers of Mathematics would find enormous scope for developing logical intelligences among the students. It is better to move from visual to abstract concepts. This would help in easy recognition, identification, connectivity and analysis among the learners.

Pattern recognition is a basic input for developing logical thinking. This helps the mind as most thoughts and concepts are structured in mind in some mental models or patterns.

At the primary level, teachers should enable the learners to:

- Identify different types of lines
- Differentiate between lines and curves
- Use the lines for simple structures like square, triangles and rectangles
- Understand the features of curved lines and draw circles and conical patterns
- Identify odd patterns or objects
- Do simple arithmetical calculations
- Establish correct relationships

In addition to the above, it is important to develop some basic graphical sense in the minds of young learners. Teachers could use numbers, patterns etc., to draw pictures of various types.

Measurement is an important dimension in the learning of mathematics. It helps in enhancing the spatial intelligence. Spatial intelligence cannot be developed without adequate logical intelligence. They go hand in hand. Teachers can use a variety of means to develop these skills

For example, measurement of length can be done as follows:

- Measurement using finger
- Measurement using palm
- Measurement using arms
- Measurement using footsteps
- Measurement using thread

- Measurement using scale

All these would help in establishing appropriate correlation between various measuring systems and spaces. Such measurement can be done in some common places:

- To measure the size of a writing paper
- To measure the size of a newspaper
- To measure the different sizes of notebooks/books
- To measure the size of widows
- To measure the size of a door
- To measure the size of a classroom
- To measure the height of small plants
- To measure the size of a dining table/chair
- To measure the size of different envelopes

Relating certain skills to life-oriented objects and situations will help them to develop appropriate skills of spatial intelligences

I am aware some teachers who use visual concepts like Comics, graphs, pictures to ask questions in Mathematics which would attract their attention and provoke their curiosity. There are teachers who have also taught concepts of Mathematics through Music and dances.

It is important for a teacher to be willing to think and experiment.

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More on Logical Intelligence

The concept of volumes can be developed using simple objects like:

- Tablespoons
- Paper cups
- Steel tumblers
- Glasses
- Mugs
- Bottles
- Buckets

. Allowing children to transfer water from one object of small volume to an object of higher volume and establish relationships will enhance their capacity to visualize, to project, to think, to plan and to evaluate.

Simple exercises like filling water in a mug when water is flowing at a slow speed and calculating the time taken and repeating the exercise with a higher speed of water from the tap and taking account of the time taken will help in establishing relationship between time and space.

Concept of weight is very important to be learnt by the primary children. They have to be facilitated with an experiential learning.

How could the teachers achieve this?

- Allow the children to feel small weights in their hand
- Allow the children to prepare simple balances and weigh objects
- Give children the same weight of light and heavy objects and feel
- Allow them to weigh small objects like a notebook, a textbook, a bird's feather, a rubber, a pencil
- Allow them to weigh small boxes of liquids (like soft drinks), small pouches of oil or milk

Such exercises can be extended to moving objects with small wheels so that the learners have an experiential learning of the concepts of speed, time and space.

Mock exercises on Post office, Bank and shops will help children understand the concept of money, trade, exchange and dispatch systems.

Exercises in approximation would help the children in extending their faculties of imagination and in projecting correct assessments.

The following exercises have been found by some teachers very helpful:

- Observing the elevations of buildings
- Observing the details of paintings and sculptures
- Observing the shadows of buildings and objects
- Observing the growth patterns of plants

The following types of questions have been found promoting logical thinking:

- Finding the odd thing out
- Questions relating to differentiations
- Questions relating to distinguishing objects
- Questions relating to “Give reasons”
- Questions relating to establishing relationships
- Questions relating concepts and visuals
- Questions relating concepts and audio inputs
- Questions relating to organization, coordination, establishing relationships

Use of Mental Mathematics and Quiz in mathematical concepts strengthens the abilities of cognition, comprehension, calculation and connectivity. Such exercises could be based on non-routine problems so as to extend their abilities to visualize and solve problems.

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DEVELOPING AESTHETIC INTELLIGENCE AMONG THE STUDENTS

Aesthetic intelligence is a very important domain in human existence. It adds the necessary charm and beauty to all pursuits in life. It adds value to all our thoughts and activities. It enhances our ownership to various sources and resources. It empowers our emotional rapport with materials and people. It facilitates synchronization of our inner nature with the external nature. It fires our imagination, powers our fantasy and opens the creative vistas of the mind. It acts as a great humanizing power.

Why should children be nurtured in aesthetic intelligence?

The formative period of our life is responsible for developing the right attitudes and aptitudes towards the world. Aesthetic intelligence helps in enabling the following in our children:

- Understanding the concept of beauty
- Appreciation of the flora and fauna
- Understanding organization and cohesion in nature
- Understanding diversity and its value
- Understanding behavioural patterns
- Sensitivity to structures, colours and patterns
- Appreciation of cleanliness, hygiene and civic sense
- Understanding the finesse in intra-personal and inter-personnel communications

The above broad objectives of aesthetics can be further detailed into simple cognizable and adaptable components in the learning process. They go a long way in giving the necessary fine tuning to the human personality.

Teaching children the concept of beauty

The children need to understand the correct concept of beauty. Normally, there is a mistaken notion in the minds of young people that beauty is associated with some of the following:

- Brightness
- Colour
- Organization
- Neatness
- Execution
- Richness
- Profile
- Value

Though these and many other inputs do contribute to the concept of beauty, one must realize that neither individually nor collectively they define the beauty of any object or material.

It is often stated that “Beauty is a state of mind”. It appears more perceptual than prescriptive. Some perceive beauty in homogeneity and others in heterogeneity. Some perceive beauty in external stimuli while others perceive it in internal stimuli. Some visualize it in concrete forms and others realize their value in abstract forms. Some pursue it more at a cognitive level while others pursue it at an affective level. Some consider beauty definable while others feel it experiential. Hence it would be difficult to impart any instructional module to learn about beauty. Nevertheless, it is important that schools should create an appropriate environment for conceptualizing beauty by the young minds.

Hence, the teachers should provide adequate opportunities in classrooms to provide those experiences which will help children to synergize all the above listed components which attribute to beauty.

We will learn more on that.....

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More on Aesthetic Intelligence

The concept of beauty can be illustrated through:

- Physical features of people and materials
- Organization in systems
- Coordination between systems
- Physical attires
- Body languages
- Cohesion and diversity in biological systems

Teachers should impress on the beauty of a human being as the beauty of their state of mind. The various attributes to the beauty of human personality can be expressed through:

- Beauty in words
- Beauty in action
- Beauty in thoughts
- Beauty in character
- Beauty in heart

The aesthetics of human mind and personality is often reflected through the way one expresses himself through the words. It is a meaningful input in developing the aesthetic intelligence of the learners.

Teachers should impress on the young minds the power of words – words as sources of energy, words as constructs of meanings, words as rhythmic expression of human cognition, words as instruments of relationships and the power of words to destroy systems and structures.

Teachers should bring out clearly the difference between sound and noise; and how the same word can be a positive input or a negative input by the style of its communication.

To develop an aesthetic intelligence, children should be trained to:

- Talk softly
- Talk politely
- Talk meaningfully
- Talk slowly
- Talk with a focus
- Talk with an objective
- Talk only when necessary
- Talk less

The beauty of an individual's character is revealed by the way one speaks. The articulation of words and its architecture should be aesthetic and profile the personality of the individual.

In a school environment, one often finds aberrations to this aesthetic requirement. There is increasing evidence of volatile expositions, display of arrogance, egotism, impatience, and restlessness among the students. This will lead to a society where people will be lost in external interactions and would not be able to take an inward journey. The ability to talk selectively with beautiful words help in developing the following:

- An introspection of the self
- Communication between the mind and the body
- Self-concept
- Self-esteem
- Objective approach
- Power to listen
- Power to negotiate
- Power to canvass
- Power to assert

Teachers should also help in matching the verbal communication with the learner's non-verbal communication. If the body language is not in perfect harmony with the verbal communication, the mismatch might indicate a sense of hypocrisy, inconsistency in behaviour, dishonesty in communication etc.

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Beauty in action

It is said: “Actions speak for themselves.” Actions portray the intent and honesty of purpose of the action.

The beauty of an action is always a treat to witness and rejoice. Most often the execution of an action outwits the result of the action and brings immense satisfaction to the performer rather than its outcomes. Teachers need to facilitate the students to:

- Formulate the scheme of action in their mind
- Plan the format of the action
- Draw a blueprint of their action
- Analyze the implications of the action on themselves and others
- Understand the parameters/limitations of the action
- Articulate its execution with the necessary finesse
- Understand and apply the quality inputs to the action

At the formative level, one does not expect serious action patterns. But certainly, attitudes towards performance of actions are developed during these years. For example:

- Focus
- Attention
- Exactitude
- Correlation
- System designs
- Setting priorities
- Critical thinking
- Decision making
- Impact analysis

Though these terminologies may sound highly technical while considering the primary school children, all these faculties certainly get engaged when small children carry out their tasks.

Most of these get reflected both in curricular and co-curricular activities. Some of them are:

- Drawing
- Painting
- Handwriting
- Role play
- Theatre
- Compeering
- Elocution/Debates
- School organization
- Prefectural activities
- Games & Sports
- Scouts & guides
- Social Service activities
- NCC and related activities
- Red Cross, Blue Cross and other club activities

A long list of such activities can be drawn where the beauty of action of the learner can be facilitated to grow and enrich.

The beauty of action of individuals display their:

- Skill
- Approach to quality
- Appreciation of precision
- Honesty of purpose
- Understanding of people and situations
- Clarity of thinking
- Levels of tolerance
- Understanding of human consciousness and of bio-systems
- Ability to cooperate
- Team spirit

Several other faculties of human existence are reflected through the actions. It is important that school and teachers advocate adequately on the beauty of action of children in the formative years so that they get integrated into the personality of learners. Students need to be encouraged to do righteous actions and stay away from actions that would harm others or inflict pain on the mind and body of cohabitants of the universe.

Some initiatives schools could take in this direction are:

- Environmental sensitivity
- Seeding and nurturing plants
- Kindness to animals

- Respect and care of elders
- Empathy towards challenged people
- Respect for law and order
- Concern for the distressed
- Refusal for unfair practices
- Advocacy for equality among people
- Respect and appreciation of religions and religious practices

Aesthetic intelligence does not merely relate to aesthetics in materials, but also reflect aesthetic feelings and aesthetic behaviour of people. It is a powerful component of the affective domain in the learning process and offers enormous opportunities in school systems for attention and action.

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Beauty of Thoughts

Words and action emanate from the thoughts of people. The beauty of thoughts of an individual largely determines the beauty of words and actions. It is therefore necessary that we help the learners to develop both beautiful thoughts and beauty in their thoughts

How do we facilitate beauty in thoughts?

Beauty in thoughts can be facilitated by:

- Objectivity in thinking
- Clarity in thinking
- Rationality in thinking
- Humaneness in thinking
- Creativity in thinking
- Tolerance in thinking

Mostly thinking patterns of young people are influenced by the following:

- Thought patterns of parents
- Thought patterns of teachers/ schools
- Thought patterns of the society
- Impact of media

All the above lead to linearity in thinking, polarization in thinking, subjectivity in thinking and lead to self-centered thinking. The children in the formative years become victims of external influences and very often miss the ability to objective thinking. It is therefore important schools do develop exercises in the objectives listed above.

Emerging consumerist tendencies have a serious impact on the mind and psyche of the learners at the formative stage. They become easy victims to temptations and yield themselves to unwarranted social and peer pressures thereby landing themselves in avoidable problems and situations.

Consumerism has taken a new manifestation. It is not only consumption of materials but there appears to be consumption of life processes. This is leading to apparent pre-maturation of children. Consequently, the thought patterns of children seem to be much ahead of their biological age. Sometimes it leads to ugly manifestation of thoughts. Hence schools need to ensure that appropriate life skills are imparted to the children so that they are not unfortunate victims of consumerist tendencies.

Linearity in thinking often becomes prejudicial to the beauty of thinking. It restricts the beauty of divergent thinking and the panorama of exploring possibilities. Linearity of thinking is normally promoted by structured syllabi, rote learning and normative evaluation. Schools should revisit the content and pedagogy of the curriculum at the formative level and open up possibilities of divergent thinking.

Children at the formative level are quite capable of fantasizing, imagining, questioning and restructuring. Facilitating them to consolidate and develop these competencies will be a great boon to their growth process.

Constructivist approach to curriculum design and pedagogy will help children to shed linearity in thinking and opt for creativity.

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Beauty and Rationality in thinking

Rationality in thinking offers another dimension to the beauty of thought. It goes hand in hand with objectivity. It enables a balanced scientific approach to thinking. Hence it is important that the children should be exposed to rational thinking.

Rational thinking competencies can be developed through:

- Ability to distinguish
- Ability to differentiate
- Ability to discriminate
- Ability to analyze
- Ability to restructure
- Ability to redesign
- Ability to judge

Several other rational thinking skills can be brought to the attention of the children and the competencies developed through appropriate exercises.

Humane touch to thinking adds colour and sensitivity to the process of thinking. Humane thinking adds value to the personality of the individual. He learns to be a part of a larger family.

Humane thinking develops the following qualities in the learner:

- Sensitivity to other's feelings
- Appreciation of equity and justice
- Empathy
- Compassion
- Social consciousness
- Tolerance for divergent views and actions
- Moral uprightness
- Shared vision

Humane thinking infuses in the learners a sense of reach to the needy and the rejected. It empowers social leadership.

Humane thinking provides a powerful facet to the personality and is possibly one of the finest aesthetic dimensions of the human mind.

Humane thinking can be integrated into both the curricular and non-curricular inputs. At the formative level, the following modes of curricular transaction help in enhancing humane thinking among children

- Rhymes and poems
- Stories from classics
- Stories and anecdotes based on values
- Biographies of persons with exemplary life
- Discussion among peer group on life skills

The schools could organize visits to the following places and organize events

- Organize visit to the schools of challenged persons and allowing interactions
- Organizing visits to old age homes and allowing interactions
- Showing pictures/ films of hospitals/ orphanages and invoking empathy
- Pictures of children suffering from malnutrition/under nutrition
- Pictures of post-disaster managements

It is important that care should be taken to generate only positive feelings for reaching and helping the affected. Any negative input could be disastrous, as they may develop rejection instead of empathy.

Teaching of human rights, fundamental rights and the like will help in educating them with the need for social justice.

If children could develop such feelings of concern and care for all, it will be a great aesthetic input to their personality profile

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Beauty of character

A person with a beautiful character is a great asset to a society. He becomes a role model for others. He has a lot of qualities for others to emulate. The beauty of character is developed right from the lowest classes.

While character profiles the inner nature of the individual, a beautiful character radiates positive energy all around. It has the power to transform others. It has the power to influence others. It has the power to provide a social leadership.

Character is the summum bonum of the thoughts, actions, words and the lifestyle of people. It shows the synergy of various facets of a holistic individual.

Positive thoughts, righteous actions, meaningful and soft words, simple unassuming lifestyles, honesty, orderliness and social cohesiveness indicate the beauty of one's character.

Ability to say NO against temptations, ability to stand up against wrong doings, upholding values, secular approach to life, spiritual outlook, scientific approach to problem solving and several other inputs add beauty to the character.

A person with beauty of character is:

- Truthful
- Values time
- Simple in thought and action
- Courageous
- Upholds values
- Humane
- Radiates positive energy
- Universal in thought
- Action oriented
- Tolerant
- Peace-loving

The above values can be inculcated among the children either by direct curricular inputs or as a part of the invisible curriculum.

Schools could take a lot of initiatives in ensuring a deep understanding of the above concerns through:

- School assembly lectures
- Short stories
- Songs
- Role play and drama
- Skits
- Celebration of important days

Apart from the above, inviting parents, grandparents to participate in the routine classes of schools once in a while for interaction would help in building an amiable atmosphere and rapport with the children.

Beauty of heart

Heart in a metaphorical sense is the abode of all feelings. Possibly that is the reason people who are curt, rough and crude are called heartless people. Metaphors like large heart, beautiful heart are therefore used to picture people who are benevolent and compassionate.

A person with a beautiful heart is aesthetically not only intelligent but is vibrant. A person with a beautiful heart has possibly the following characteristics:

- Unconditional love
- Compassionate
- Empathetic
- Service-oriented
- Spiritual
- Out reaching
- Composed
- Passionate
- Inclusive

A person with a beautiful heart is

- Generous
- Courteous
- Accommodative
- Helpful
- A good listener
- Dependable

- Friendly
- Sensitive
- Full of positive energy
- Self-actualized

It is important that we generate these basic life skills among the students right at the formative stages.

Various exercises can be adopted in the classrooms to help the children to imbibe these qualities. However, the role and support of parents is very essential to develop these qualities.

It is often seen that many parents are biased over developing logical intelligence as preferred to other intelligences. This is possibly because of a mistaken feeling that science and mathematics subjects are more akin to the logical intelligences. This is not true. It must be understood that all subjects yield themselves adequately to developing all the known intelligences. In the entire spectrum of intelligences, aesthetic intelligence occupies a very pivotal role as it is in perfect tune with the finer sensitivities of human existence.

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DEVELOPING INTER-PERSONNEL INTELLIGENCE

Every human being is a social animal. From birth to death, one goes on interacting with the people around and the environment. He or she is in constant communication with the surrounding. Such communication is both verbal and non-verbal. History is evidence to the fact that non-verbal communications were predominant in early days till the development of languages took place. Inter-personnel intelligence is a major contributor for developing patterns and perspectives of culture. It helps in cultural designs and their sustenance. At the individual level, it is a strong index of the culture of the individual.

Why is inter-personnel intelligence important?

Inter-personnel intelligence helps in the following:

- Communication of needs
- Communication of desires
- Communication of ideas, fears, feelings and emotions
- Establishing and building a rapport
- Sharing of concerns
- Developing concepts of equity and social justice
- Dissemination of knowledge
- Developing social systems and their sustenance

At the formative level, development of inter-personnel intelligence is important for the following reasons:

- It helps in developing attitudes
- It helps in appreciation of other's strengths and limitations
- It helps providing time and space for everyone in a system
- It helps in building levels of tolerance
- It helps in effective communication
- It helps in developing appropriate body language
- It helps in building a shared vision
- It enhances the team spirit.
- It facilitates developing alertness, agility and acumen.

While some parameters of inter-personnel intelligence vary depending on the socio-economic, political, geographical and cultural differences between societies, the basics of inter-personnel intelligence remain common and universally applicable.

In the formative stage if the following aspects of inter-personnel intelligence are brought to the attention of the students, it will help in establishing right attitudes in their mind for their lifetime.

- Punctuality and time management
- Politeness in communication
- Brevity in communication
- Effectiveness in communication
- Appropriate body language
- Exercises in restraint
- Non-aggressive behaviour
- Modes of greeting
- Organization and discipline in large systems/groups
- Respect for other's feelings/abilities
- Co-operation as against competition
- Team spirit

More to follow

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Inter personnel intelligence is a vital life skill. It empowers the individual to establish a rapport with the neighbourhood and the society at large. It helps in bringing a sense of togetherness, partnership and sharing between people. It facilitates to understand and appreciate the needs, desires, place and perspectives of others.

At the formative level, it is important that some of the inputs as detailed above are brought to the attention of the learners so that they are able to understand their significance and adopt them in their life in an appropriate manner.

Students in the primary classes have to be exposed adequately to the concept of punctuality and time management. Punctuality is a great value and it brings a lot of respectability to the people who practice it. It enhances the self-esteem of the people and helps in planning, scheduling, focusing and regulating the activities. It adds a professional dimension to the practices of people.

Punctuality is considered as a trait that decorates the profile of the person. Hence teachers should give adequate thrust to this value and bring home to the children the importance of practice of this value.

Simple practices like attending the school on time, doing their assignments on time, adherence to the schedules allotted are some of the things that will bring home the desired attributes.

Time scheduling is an important activity which can be taught to the learners. The following types of works can be undertaken:

- Scheduling time for study
- Scheduling time for writing homework
- Scheduling time for writing answers for examinations
- Scheduling time for speech
- Scheduling time for physical activities

Several other types of work can be scheduled for prescribed time. This will help in:

- Planning of activities
- Organization
- Time-management

- Critical evaluation of execution
- Focus
- Setting priorities
- Self-regulation

Inter-personnel communication

Communication between people is vital for developing understanding, rapport and work execution.

Children should be trained to be polite in their talking. The following are important while initiating communication between people:

- The objectives of communication
- The place of communication
- The time schedule for communication
- Priorities of the subject
- Language to be used
- Phonetics of the language
- Style of speech delivery
- The tone and the voice level
- The mood and the type of the listener(s)

Effective communication is important to sustain the rapport between the speaker and the listener. Hence children should be helped in understanding the need for appropriacy of language, brevity in communication and the context in which communication is taking place.

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Inter-personnel intelligence calls for development developing the following skills in communication:

- Logical sequencing of thoughts
- Appropriate use of languages and words
- Continuity in thoughts
- Correlation between thoughts and tools of communication
- Understanding the interest and motivational level of the listeners in the subject concerned
- Sustaining the attention of the listeners

Body language goes hand in hand with verbal communication. There should be adequate correspondence between the verbal language and the body language.

Children should be trained in the following:

- Use of body positions
- Use of non-aggressive body language
- Correspondence between language and gestures
- Correspondence between tone, voice and subject matter
- Modes of pause while talking
- Sense of timing while speaking
- Stress-free communication

Children should also be exposed to different methods of communication between individuals like:

- Speaking
- Convincing
- Reporting
- Canvassing
- Negotiating

The difference between communication at the individual level and group level can also be taught to the children.

At a group level, the individual should exhibit the following traits:

- Respect for other's views
- Capacity to listen
- Patience
- Cooperation
- Maintenance of individuality
- Enabling a shared vision
- A sense of team spirit
- Ability to assert
- Ability to accept a joint decision

Teachers could adopt different strategies in the classroom to develop the above traits. Some of the strategies could be:

- Elocution
- Group discussions
- Brain storming exercises
- Monologues
- Role play
- Skits
- Team activities

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In an increasingly globalized world, where inter-personnel relationships are becoming increasingly important, the following dimensions of inter-personnel communication are also becoming quite sensitive:

- Communication with persons of different social and cultural groups
- Communication between urban and rural population
- Communication with differentially abled group
- Communication with persons speaking different languages
- Communication with persons from nations/ territorialities

The learners also need to be exposed to the basic differences between personal communication and mass communication.

Some information which could be provided to the children are:

- Tools of mass communication
- Objectives of mass communication
- Methods of mass communication
- Reach and impact of mass communication
- Role of technology in mass communication

Though it may be quite a challenge to bring home all the nuances of the communication at the formative level, even acknowledgement of the needs of the different groups will be an added strength in developing the inter-personnel intelligences of the young children.

Empathy occupies a vital place in human emotions. It is a strong contributory in the development of inter-personnel intelligences. It facilitates understanding the emotional needs of others, appreciating their concerns and enabling a positive and facilitative communication with others. Teachers could work out exercises which would help in developing the inter-personnel intelligences of the students. Such concerns can be developed more strongly and purposefully at the formative levels of learning.

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Non –verbal communication as a tool

In effective inter-personnel communication, it is not only the language one uses is important, but the body language and other related skills are as much significant.

It is very often seen that many people with effective language skills are not able to drive home a point or impress on others due to poor body language. In appropriate body language very often nullifies the utility of the language. It creates a negative or inhibitive environment between the speaker and the listener.

The students need to be trained on the use of non-verbal communication depending on the situation. For example, one would different non-verbal skills in different types of inter-personnel communication, like:

- Platform speaking skills
- Lecturing skills
- Debating skills
- Marketing skills
- Negotiating skills
- Convincing skills
- Argument skills

The use of eye, facial expressions, movement of arms, body posture, positioning, distances are some of the issues one needs to take care of.

For example, it matters where you are looking when you speak to somebody. It matters how you are looking at the other person. What kind of emotions do your eyes convey? Do they show aggression, anger, empathy, compassion or something else?

Pointing fingers at some one while you are talking is often seen as bad manners in many cases. Hence how do you use your fingers? How do use your arms? How does one stand? Are the shoulders straight or sagged? Where does one position the hands? All these reflect your understanding of the person, the issues and your mental status about the matter under discussion. These profile the personality of an individual. Psychologists do feel that such small things tend to fall into a habit thereby modifying the behavioural pattern of an individual and his estimate in the

society. It is therefore important, that schools should ensure that these skills are integrated as a part of the classroom exercises as well as co-curricular exercises.

Space and time are considered as two important aspects in any inter-personal communication. Space is both physical and mental.

While engaging in a discussion, one should know the position he should take – straight or angular, proximate or distant, one should also know the physical space between the people so that people feel comfortable and not imposing.

Similarly, while engaging in a discussion adequate mental space should be given to everyone in the group to actively participate and put across their views instead of dominating oneself; such positions are always held inhibitive or others start slowly disengaging themselves from the conversation/discussion feeling a sense of discomfort or lack of security.

Similarly, while engaging in the mass communication methods, it is important to make one's visibility and audibility to the entire audience and create a sense of ownership with them; otherwise, the listeners disengage themselves from any talk or presentation either due to lack of interest or indifference.

Schools need to address some of these life skills as they are the nutrients to the development of the holistic personality of the younger generation.

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Nurturing Musical Intelligence

Have you ever listened to the rustling of the leaves?

Have you listened to the humming of the bees?

Have you ever listened to the chirping of the birds?

Have you ever listened closely to the fall of a rain drop on dry sand?

If you have, you have a great musical intelligence! Music is associated with every creation. Music is associated with every primordial activity. It is an expression of nature to communicate her presence and existence to the entire living and non-living things in the universe.

Shakespeare calls people without an ear for music as animals!

No wonder, therefore, Gardner could give a special place to musical intelligence in his spectrum of human intelligences.

In the January 1997 article, “The Musical Mind”, Gardner was quoted as saying that music might be a special intelligence which should be viewed differently from other intelligences. He stated that musical intelligence probably carries more emotional, spiritual and cultural weight than the other intelligences. But perhaps most important, Gardner says, is that music helps some people organize the way they think and work by helping them develop in other areas, such as math, language, and spatial reasoning.

In another publication, Gardner states that school districts that “lop off” music in a child’s education are simply “arrogant” and unmindful of how humans have evolved with music brains and intelligences. Students are entitled to all the artistic and cultural riches the human species has created.

Here are some extracts from researches done by neuropsychologists on the impact of music:

“One such study published in *Science* in 1995 reported that musicians who learned to play string or keyboard instruments before adolescence appear to have larger areas of the brain devoted to touch perception of the fingers. In the journal, “*Neuropsychologia*” it was reported that musicians who started keyboard training before the age of seven had 12% thicker nerve fibers in the corpus callosum, that part of the brain that carries signals between the two hemispheres.

Sharon Begley’s article, “Your Child’s Brain...” in *Newsweek* reported that researchers at the University of Konstanz in Germany had evidence that exposure to music rewires neural circuits.

At a January 1997, International Alliance for Learning Conference called “Unleashing the Brain’s Potential” in San Antonio, Texas, the majority of the presentations focused on the use of music to accelerate learning, as initially developed by Dr. Georgi Lazanov, and now used throughout the world as an important educational methodology, to optimize memory and other cognitive processes. Educational Listening Centers around the United States utilizing the research of Dr. Alfred Tomatis, use the music of Mozart as a vehicle for remediating audiological and neurological dysfunctions and facilitating higher levels of brain function.”

More on Musical intelligence to follow.

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Teaching through Musical intelligence

There is a lot of music in and around us. Every sound in its rhythmic pattern manifests into music. Right from the birth the children have an ear for music. Music brings harmony to the mind and soul. Have you anytime heard the mother singing a lullaby to the child in the cradle? The song brings along with it information, knowledge and worldly sense to the child. May be that the child doesn't understand the meaning and the context of the words in the song, nevertheless the child focuses on the rhythm and absorbs it. The child understands the communication of the mother through the tone, pitch and other ingredients of the lullaby. It establishes an emotional link between the mother and the child.

In the nursery classes we start teaching through rhymes. It is indeed a very powerful medium of communication. Through the rhymes the child learns information, skills, emotions and relationships. The verbal language and the body language of the teacher provide the right context and ambience for learning. Along with the information, the rhymes also provide the right platform for value communication and reinforcements. In early days every letter of the native languages was taught orally through instruction and repetition, but each letter was contextualized around a given value. There was a rhythm even in the prosaic statements uttered by the kids

Learning classical music was an important component of the growth process. Not that the family desired the members to become musicians of the first order to perform on the stage, but the knowledge of music was considered as an essential component in the process of humanization. The folklores sung by many of the village folk during the discharge of the duties was associated with music and dance, both individual and chorus, suggesting the idea of the ease and synergy in the performance of the work and also to take away the monotony and boredom.

It is important that music be integrated into the pedagogical inputs. For language teachers, teaching of poetry provides an excellent platform for enhancing musical sense. Meter, rhythm, melody, lyrics and several other inputs help in enhancing the quality of the poetry and a teacher has to take cognizance of the same while teaching. Stale and mono-sonic delivery of poetry kills the very spirit of poetry. In early days, language teachers even used to sing the poetry in the classrooms.

Poetry writing has to be encouraged in the classroom. This creative work will help the learners to understand the music of nature and music of life; and to give a verbal manifestation to it in their own language.

Many children exhibit their Musical intelligence competencies through one of the following:

- Playing a musical instrument
- Listen to music frequently
- Humming or singing a lot?
- Cheering oneself up with songs when sad
- Telling you when music sounds off-key?
- Being prepared to sing when called for
- Remembering the lyrics once they hear the melodies of songs

Most often we ignore or neglect such exhibition of interests and tend to condemn them.

We will learn more about the musical intelligence in the next issue

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Integrating Music in Learning

Ben Jesson observes in his book Brain-based learning “Teach learners to manage their own learning states. How students feel is critical to the decision to learn, the quality of learning, and the ability to recall the learning. Reduce negative states by changing activities frequently, by providing choice, attending to physical needs and by keeping the stakes and challenges level high. Be supportive and provide frequent opportunities for feedback.”

You might have seen many students doing their mathematics or other homework at home listening to music and songs. Many people at home attend to their daily chorus after switching on their musical DVDs. The mind and the body respond to certain rhythms and gets the energy necessary which catalyzes their chosen area of work. If you closely examine, music is related to almost all disciplines of learning. For example, there is a lot of mathematics in music. Many of the concepts of mathematics can be taught using music and dance. In the primary classes, the rhythmic manner in which tables were taught and the type of body language used in the pedagogy are some examples. They have a strong sense of pitch, tonality. They tend to seek the meaning of the words and understand their synonyms. They show excellent mind-body coordination. There is a strong belief that the students well versed in music are left brain oriented and hence they don't learn mathematics well, as mathematics is basically a right brain activity. The myth has been diffused by recent research studies.

In one of the research done on a group of musicians, it was thought that their left brain would be more active as against the right. But the research indicated that while they were singing it was the right brain which was more active than the left because musician used all his computational competencies to render the music in its perfect rhythm and melody. However, the brain studies of the listeners showed higher activity in the left brain as they were enjoying the music rather than computing it. This is suggestive of the fact that it should be possible for the students keen in music to learn mathematics better as they have the capacity to apply the skills of mathematics. What appears is that we need to teach the way they learn, rather compel them to learn the way we teach.

A few of the mental faculties promoted through music are the power of visualization and intuition. It has been proved beyond doubt that the musicians have the unique capacity to visualize things in their mental frame and structure it in the form of words and tunes. They also exhibit extra-ordinary powers of intuition in synergizing the tunes and composing them. The

students interested in music have enormous capacity for creativity. They tend to go on creating patterns in their frame of mind. Such mental skills have a great impact in learning and life processes. Teachers in classrooms can identify such students who have special interest in music and provide them such activities and projects in which they should be able to synergize their mental competencies Teachers should note that it is important to understand the mental skills of their learners and help them to extend these mental skills in learning of other disciplines.

Learning of history and geography can be facilitated through music. Asking the students to study the history of music during concurrent periods of history and relate the status of the art during that period attributing causes would enable learning history in a more logical form. What is implied is that a possibility of facilitating the learners to learn in their own way through the field of their interest and aptitude has to be found out.

Jesson observes “There is no such thing as an unmotivated learner. There are, however, temporary unmotivated states in which learners are either reinforced and supported or neglected or labeled.”

Do you find some useful ways of integrating music in the pedagogy of your subject? Why don't you share with all of us? Knowledge is not to be stored in the cabins of the bank lockers!

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More on Musical intelligence

In a self-assessment report, a student studying at a class equal to the secondary level in India, reflected his competencies in Musical intelligence as under:

- Have sensitivity to sound patterns
- Hum tunes
- Tap or sway in rhythm
- Discriminate among sounds
- Have a good sense of pitch
- Move rhythmically
- Capture the essence of a beat and adjusts movement patterns according to changes
- Remember tunes and sound patterns
- Seek and enjoy musical experiences
- Play with sounds
- Am good at picking up sounds, remembering melodies, noticing pitches/ rhythms and keeping time.

Quite often, we do see many of the students in our classrooms indicating one or more of the above qualities. Some of them are present in an invisible mode in many because they are sometimes over-cautious not to express them in a class so that they do not become the victims of the wrath of a conservative and conventional teacher. Display of such patterns are usually evident even from classes III onwards as such interests are picked up at the formative level itself.

In the January 1997 article, *“The Musical Mind”*, Gardner was quoted as saying that music might be a special intelligence which should be viewed differently from other intelligences. He observes that musical intelligence probably carries more emotional, spiritual and cultural weight than the other intelligences. Most importantly, Gardner says, “music helps some people organize the way they think and work by helping them develop in other areas, such as math, language, and spatial reasoning” Gardner further argues that school districts that “lop off” music in a child’s education are simply “arrogant” and unmindful of how humans have evolved with music brains and intelligences as students are entitled to all the artistic and cultural riches the human species has created.

A lot of research appears to have been done on the impact of musical competencies in the neural circuits. Here are the extract of a few findings:

“One such study published in *“Science”* in 1995 reported that musicians who learned to play string or keyboard instruments before adolescence appear to have larger areas of the brain devoted to touch perception of the fingers.”

In the journal *“Neuropsychologia”* it was reported that musicians who started keyboard training before the age of seven had 12% thicker nerve fibers in the corpus callosum, that part of the brain that carries signals between the two hemispheres.

Sharon Begley’s article, *“Your Child’s Brain...”* in *Newsweek* reported that researchers at the University of Konstanz in Germany had evidence that exposure to music rewires neural circuits.”

Can we take integrate music in the learning of other subjects. Here is a piece of information those who could think on the negative.

Math Set to Music

“Kids come to school knowing 'Mary Had a Little Lamb' and 'Twinkle, Twinkle, Little Star,'” says Kay Smitherman, a retired math teacher from Angleton, Texas. “Wouldn't it be nice if children came to school already knowing math formulas by heart?” Smitherman, whose “Math Songs” activities appear in the January/February issue of Instructor, has made a second career of setting math-themed lyrics to popular tunes to help kids memorize essential formulas and skills

On the lighter side:

“With music, the steps are already implanted in your brain,” she explains. “Students can hum while a test is being taken—it's right there in their heads.” Once, she recalls, a student walked up to her after a test and confessed that a group of children had cheated. “What?” she asked, surprised. “How?” The sheepish student explained: “When we got to that part about mean, median, range, and mode, we hummed until we got to that part, and then wrote it down.”

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Experiments with Musical Intelligence

A lot of conscious effort has been made worldwide to integrate Music in teaching of a wide variety of subjects. These experiments do indicate that if the teacher is willing to experiment, is willing to move away from the text-based teaching, is willing to adopt newer strategies in pedagogy, they would always find it possible to integrate music in the curriculum.

Example 1

(Extract from an internet site)

Getting students to participate in the music-making can add another level of engagement. Math educator Robyn Silbey, from Gaithersburg, Maryland, encourages the teachers she trains to “use music to help students recall basic multiplication facts, for example. The teachers challenge kids to reinforce these facts by making up new words to a well-known song.”

“This strategy is an effective way to have students embed anything they need to learn for mastery or to memorize,” says Silbey. “I like it because all the kids are involved in teaching and learning, it's less work for the teacher, and it's fun and gets the job done.”

Example 2

A fluent Spanish speaker, Butler started Boca Beth, a Spanish-English language program that uses songs, movements, and puppets to teach Spanish vocabulary and phrases. The familiar songs on Butler's DVDs and CDs—such as “*Five Little Monkeys Jumping on the Bed*”—alternate between English and Spanish stanzas.

“Children are such sponges,” says Butler. “They pick it up quickly, and music makes it so much easier for them.” Just 10 minutes a day can put kids on the road to building a decent bilingual vocabulary—with no effort at all. Kids can just relax and listen.

While music can help kids retain a new language, it also helps them with basic skills in their native language

Example 3

When Diane Connell taught a lesson on honeybees to third graders—including children with special needs—she looked for a way to make the subject come alive. A quick browse through the local music store turned up Rimski-Korsakov’s “Flight of the Bumblebee.” Back in class, the children got out of their seats and “buzzed” around the room to the fast, jerky rhythm of the composition. “The music helped them feel exactly what I was talking about in the lesson,” says Connell, now an associate professor at Rivier College in Nashua, New Hampshire. Teaching the students in this fashion engages the emotions. “If students really care about something, they’ll remember it,” asserts Connell

Experiment 4

Tibbett links her music lessons with history, such as the Ghost Dance that took place before the Massacre at Wounded Knee in the late 1800s. The dancers performed the dance as a healing ritual, but “the military perceived it as a war dance,” she says. “It made them nervous—and the massacre followed.” Playing music that accompanied the Ghost Dance can bring history alive for students. By analyzing their own gut reactions to the music, students can gain a better understanding of how the military might have interpreted the Ghost Dance and the dancers’ intentions

Music Promotes Wonder. Beyond the research, teachers know from the expressions on their students’ faces that music’s benefits go far beyond what can be assessed. Put simply, students enjoy, gain nourishment from, and build their confidence through participation in the arts. Writes Norman Weinberger, Ph.D., a professor in the department of Psychobiology at the University of California, Irvine, “Arts education appears to really bring out the best in students, capitalizing on their natural curiosity and allowing it to flourish in a varied, stimulating environment.”

Just imagine what kind of importance we are giving to Art Education in our schools? Do you think it is worth preparing children for the competitive examinations from the date of their admission in the schools?

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(NOTE; All the above experiments have been extracted by me from various websites. The objective of the illustration is not to state that we can repeat them in our classrooms; but just to mention that an innovative teacher will always look for an appropriate strategy for enhancing the effectiveness of the classroom. It is important that we need to select experiments that are culturally, historically and geographically relevant and contextual.)

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Spatial Intelligence

In the spectrum of multiple intelligences identified by Howard Gardner, Spatial intelligence occupies a very significant place. It involves the potential to recognize and use the patterns of wide space and more confined areas.

Elaborating the above, educational psychologists point out *“Spatial functioning is a mental process which is associated with the brains attempts to interpret certain types of incoming information. This information is basically anything visual - pictures, maps, plans etc. While other types of intelligence (such as mathematical ability) are historically esteemed by society, Spatial ability is probably and silently the most vital aspect of the humans mental capabilities. Without the ability to comprehend and interpret visual information something as apparently straightforward as remembering how to get to the front door of our house (from the living room!) would be beyond us.”*

Have you seen small children playing with their toys? Sometimes building houses using blocks, trying to fix one instrument or toy with the other, sometimes trying to draw a picture on the wall or in their notebooks. The pursuit for visualizing starts right from the small age. Ben Jesson describes about the ability of the young children to think ‘visually’ through symbols, pictures, patterns etc., It is important to encourage the younger generation to visualize and form their mental frames. Visualization leads to development of mental modes and conceptualize space in the mental frames.

Gardner explains that spatial intelligence emerges as an amalgam of abilities and that practice in one of these areas stimulates development of skills in related areas. Gaughran agrees with this hypotheses in his sub-factor theory of spatial ability where he divides spatial functioning into five sub-areas of ability which are hierarchy and interrelate

Some educationists describe this as a naturally existing skill and argue that “Visual-Spatial intelligence refers to the ancient hunter-gatherer ability to represent the outer world internally in your mind. It's the ability to hold the world visually in your mind "the way a sailor or pilot navigates the large spatial world, or the way a chess player or sculptor represents a more circumscribed spatial world". It gives you the ability to know where you are in space. If you find it easy to visualize things as though you were an observer taking up different positions, like a fly-

on-the-wall, then you are strong in this intelligence. Spatial intelligence predominates in the arts and in science.”

The following are identified as largely the traits of the students with visual spatial intelligence:

- Likes art, drawing, sculpture, painting
- Good at directions, reading maps
- Can visualize or imagine vividly
- Remembers in pictures (photographic memory)
- Appreciates colors
- Uses metaphor
- Often found doodling
- Speaks fast
- Thinks in pictures (...worth a thousand words)
- Tends to look at the "big picture"
- Likes to watch the video when listening to songs

Dr. Gerald Grow of Florida observes “The spatial intelligence may play an important role in organizing writing."Mind maps" and outlines are spatial methods of displaying the organizational structure of a thought. Through this kind of visual thinking, one can perceive how thoughts are related to one another, how realms of thought stack, overlap, or stand side by side.”

We will see more on spatial intelligence in the forthcoming issues.

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More on Spatial intelligence

Spatial intelligence is used by almost every person at some time or the other during the course of discharge of their work. One need not have gone through a process of schooling or collegiate education to be comfortable and competent in the use of this faculty. A plumber, a carpenter, a mason, a sculptor, a poet – everybody uses the faculties of spatial intelligence in their work. In a classroom situation, this intelligence can be effectively integrated in teaching of all subjects like Languages, Mathematics, Sciences and Social sciences.

Children practicing dance, theatre, folk arts and games use the inputs of spatial intelligence effectively in whatever platforms they work.

Kimberly Keith, writing about the bringing up of children in the group of K-6 observes:

“These children think in pictures and images. They tend to perceive the environment holistically, storing information in a non-sequential fashion, revealing the strength of their right-brain processing. Their rich internal imagery makes them very imaginative and creative. They are the visual learners. They like posters and pictures and movies and other visual presentations of new information. They are daydreamers, sometimes becoming so engrossed in their own internal "movie" that they don't seem aware of the external environment. But, don't be fooled. They are also keen observers of the world around them, noticing subtleties and details that most of us miss. They also have an excellent awareness of space, the orientation of their body and others. This spatial awareness gives them skills in drawing, doing puzzles, mazes, and any task that requires fine-motor manipulation.”

A teacher practicing in the secondary school in UK observes on the effectiveness of Spatial intelligence in the classrooms: “Spatial intelligence can be used in all aspects of life. To represent a problem, some mathematicians would rather express it in a mathematical model like a graph, and to illustrate social structures, diagrams are commonly used, 2 common manifestations of spatial intelligence. An individual who is gifted in this intelligence would generally be able to learn concepts much faster, as they would be able to represent and store a complicated concept or theory in a simple diagram in their memory. They would love the practical side of learning because they would find it easier to understand and commit to memory. For example, they would benefit more from a practical science class than a theoretical science class.

A student who exhibited notable skills of visual/spatial intelligence was asked to identify the possible avenues he would look forward to.

He recorded some of the possibilities as under:

An artist	Architect
Urban planner	Explorer
Surveyor	Navigator
Mechanic	Ship's captain
Cartoonist	Curator
Interior designer	Chess player
Photographer	Fashion designer
Florist	Graphic designer
Web designer	

Advances in neuroscience have now provided researchers with clear-cut proof of the role of spatial intelligence in the right hemisphere of the brain. In rare instances, for example, certain brain injuries can cause people to lose the ability to identify where they are or even to recognize their closest relatives. Though they may see the other person or place perfectly well (some patients have demonstrated this with unusually keen drawing ability), they are unable to comprehend who they see or where they are. Additionally, cases of the seeing impaired draw the distinction between spatial ability and visual acuity. A blind person may feel a shape and identify it with ease, though they are unable to see it. Because most people use spatial intelligence in conjunction with sight, its existence as an autonomous cognitive attribute may not seem readily apparent, but recent scientific advances do suggest that it is clearly an independently performing portion of the intellect

If you have any suggestions of integrating visual/spatial intelligences in the classroom please feel free to send us for the benefit of the Learning Steps – the Learning community.

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Integrating Spatial intelligence

The concept of spatial intelligence can be started right from the nursery classes. Very often the small kids are asked to draw lines both straight as well as slanting. They are asked to trace the dotted lines in pictures. They are asked to colour the given pictures; sometimes asked to use the combination of colours. In cursive writing books they are asked to limit to the lines given above and below. The idea of small things and big, long and short, huge and small are all built into the learning process in various subjects. Mathematics offers itself many useful ways of developing concept of space. The students should be trained to visualize spatial concepts in mental frames. This would go a long way as a practical tool in many life-oriented tasks. These can be even taught in an informal manner eliminating the fear of assessment.

Teachers can use simple experiments in classrooms and offer opportunities for experiential learning. Measurement of area, volumes using a variety of tools would help in a broad-based understanding of space. These experiments help in developing fundamental techniques like approximation, estimation, evaluation of the given situation. Teaching simple techniques of measurement, estimation can be used effectively in the classrooms. I have seen many teachers using Rangoli as an effective tool for developing concept of space.

The subject of geography yields itself to consolidate the concept of space in real time situations. Sense of direction, latitude, longitude, distances help students understanding the concept of the world better, Study of planets, stars and other heavenly bodies, their positioning and movement, the concepts of the various spheres encompassing the earth, the occurrence of nights and days, the various standards used in time and similar inputs enlarge their understanding of space and effective use of time and space.

History teachers can organize visits to forts, palaces and other monuments, the use of space in various forts for achieving various objectives can be explained. How the concept of space was used for positioning various units of the army, storage of materials and movement of men and materials can be highlighted. Even the constructs and architecture of temples, mosques, churches and other important buildings throw light on effective and intelligent use of space.

It is important to enlighten the learners how people used transport for movement of materials and goods in the absence of high-speed mechanisms of the present day will bring to light the intelligent use of space. The communication systems of yesteryears shows how the human mind articulated effective use of people and resources,

Dance and theatre are elegant and intellectual exercises in the use of space. One may wonder how the artists used limited and specific places for communication and display of talents and histrionics. The paintings on the walls, ceilings, glass panes, clothes, potteries are excellent demonstrations of skills and techniques in spatial intelligence.

Games and sports call for intelligent use of space. Several folk games are excellent exercises in spatial intelligence

It is important that a teacher has to “visualize”, “think:” and integrate the concepts of spatial intelligence in the learning process. It is unfortunate that monotonous and text-centric approach to teaching has killed the development of a variety of mental faculties. Can we stop teaching and preparing the students of classes I to VIII at least for examinations of one or the other Board and focus in unraveling the wonders that lie in the brain?

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Visual/spatial intelligence and non-conscious learning

Sometimes one wonders that you remember the shape, size, colour and various other geometrical inputs of things which you might have seen at a glance. You are not even aware that some of these things you had really seen with intent, a purpose or with an effort. How does this happen?

Ben Jesson says “Your non-conscious mind acts before your conscious mind acts! In fact, as early as two seconds prior to an actual activity or movement, our brain has already decided what body parts to activate and which side of the brain to use. This means that we are already acting on a thought before we are even aware of it.”

Thus the non-conscious mind registers several micro-variables of an environment (learning) in the brain. There is no conscious effort on the part of the learner. It is important for the teachers to understand this phenomenon. A deep understanding of this would enable a teacher to suitably change the paradigm of presentation and discussion. The teacher should be able to activate the non-conscious learning which is further impacted by the previous learnt perceptions of the learner.

In an experiment conducted by Dr. E. Donchin at the University of Illinois, he proved statistically that nearly 99 percent of all learning is non-conscious. With specific reference to the visual/spatial intelligence domains, it is important to note that the visual climate has a significant impact on learning. Our eyes are capable of registering nearly 36000 visual messages per hour – when you are not even conscious of it. In other words, a near 80 to 90 percent of all information registered in the brain is from the visual impacts. Please note that the eyes go on sending the signal to the brain where they get registered.

The eyes not only see them but make a meaning out of them! This happens by integrating several of the inputs like colour, size, contrast, shape etc., These collective information and meaning provide the required framework for the attention of the learner for further learning, motivation, and curiosity. The teachers need to understand that thus the spatial interpretational inputs are latently available in the functioning of the brain and what one has to do is only to nurture and facilitate its effective use in the learning domains and application domains.

Vueontela et al concluded in their research conducted in late nineties that the colour has a significant impact on the learning process. A similar research conducted by Morton walker in conducted very convincing results and he describes in his book *“The Power of Colour”* the physiological effects of colour on anxiety, pulse, arousal and blood flow. He also states that how a colour affects an individual depends on his personality and the status of the mind at the moment. It is important for teachers to understand the role of multi-media in learning. Use of bright colors, colour mixes have to be understood and planned according to the age category, subject of communication and the time of communication. Usually bright red is avoided in school uniforms as it triggers more aggressiveness.

In *“The Power of Colour”*, Walker suggests “For optimal learning, choose yellow, light orange, beige or off-white. Those colors seem to stimulate positive feelings.”

Neuroscientists also suggest that concrete and vivid images are very influential in learning. Their research indicates the following information:

1. The brain has an attentional bias for high contrast and novelty
2. 90 percent of the brain’s sensory input is from visual sources
3. The brain has an immediate and primitive response to symbols, icons and other simpler images

Well, do you have any classroom investigations on the above? I am sure you will have in each classroom. Please share your experiences with peers.

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Growing with Spatial intelligence

When we talk of spatial intelligence, let us not restrict to a definable visible space. The enlarged context is the ability of the learner to visualize both in two dimensional and three-dimensional constructs, to examine an issue in its holistic context. World over, several initiatives have been taken to integrate spatial intelligence from the school learning level to factories, industrial outfits, business houses, real estates and in marketing contexts. In a school environment, a teacher has to empower the learner with this unique ability to visualize and interpret from a 360-degree point of view.

Detailing the role of teachers, Ben Jessen observes “The more visuals you can incorporate the better. The visual environment can be positively impacted by providing changes in location and learning stations. Visuals are important key to remembering content. Make lecture or presentations more compelling to the brain with objects, photographs, graphics, charts, graphs, slides, video segments, bulletin board displays and color. For maximum impact, change colors frequently – from inspiring videos and vivid posters, to mind maps, drawings and symbols.”

In a nursery or a pre-school environment, the toys and the games provide a lot of inputs to observing, understanding, and using the concept of space. Organizing a classroom in different patterns at periodic intervals, helping the kids to effectively use the space in the classroom, in the notebooks and in all their work will inculcate slowly an appreciation of space and resources. The Mathematics laboratory provides an excellent platform for understanding and using various mathematical shapes, patterns for understanding and explaining the concepts. It is unfortunate that still many schools are using paper-based projects in mathematics laboratories, The kids need to be taken out of the text book and use the computational concepts and geometrical understanding to real time situations.

A few do argue that use of computer and television would possibly enhance some of the skills. While I do not want to reject the proposition as I am an advocate of technology, please do remember the television has an impact on the limbic systems of the young learner and hence would influence the emotional profile. An excessive function of the limbic system could be disastrous to the holistic profile of the learner.

Dr. N.S. Srinivasan and Dr. G. Balasubramanian working in the field of Neuro-cognition observe in their book “*Brain Re-engineering*”:

“While over-activation of the limbic system is an essential part of the growing up process, indiscriminate promotion of the limbic system appears to be the cause (and prime accused) for school-dropouts and social rejects. A research conducted on the effect of television viewing by children showed that:

1. higher levels of television viewing correlate with lowered academic performance, especially reading scores. The compellingly visual nature of the stimulus blocks development of left-hemisphere language circuitry. A young brain manipulated by jazzy visual effects cannot divide attention to listen carefully to language.
2. the nature of the stimulus may predispose some children to attention problems”

It will be relevant to integrate nature and naturally occurring resources to the understanding and appreciation of spatial intelligence.

It will be a good idea if schools organize a committee consisting of teachers from the subjects of Mathematics, Geography, Music/dance and Sports along with a language teacher to examine the feasibility of working towards this goal in a synergetic manner.

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Kinesthetic intelligence

The Body-kinesthetic intelligence is a natural form of intelligence present in a large cross-section of the learners. This intelligence/style is related to physical movement and the knowing/wisdom of the body. It is the ability to use the physical body skillfully and to take in knowledge through bodily sensation, as well as including the brain's motor context, which controls bodily motion, in the learning process and effectively using the same. Body/kinesthetic learners learn through moving, doing and touching

We often talk about “learning by doing.” This way of knowing happens through physical movement and through the knowledge gained through our physical body. The body “knows” many things that are not necessarily known by the conscious, logical mind, such as how to ride a bike, how to parallel park a car, dance the waltz, catch a thrown object, maintain balance while walking, and where the keys are on a computer keyboard. **The knowledge gets built into the body and its movements as natural abilities or responses.**

Have you seen the small children playing at home? They touch the toys, move them, meddle with them, play with them and do a number of things. All these do provide a sensory input to the child, though the child is unable to make a meaning for most of the things at a level the elders look forward to. Nevertheless, they do gain a sensory input and an impression or a perception about them. When they do not like the feel of a toy or get frustrated due to their inability or failure to handle them, they show their disinterest with those toys.

Simple games played by the children like a moving train, frog leap, hide and seek and many such things do enhance their ability to learn about things through physical touches and interactions. They learn the power of discrimination, power of differentiation, the power of choice, lessons in proximity, learning through tactile inputs. The initial few lessons of kinesthetic intelligence are also drawn when they start crawling, sitting and start walking. All these tend to support the idea that the kinesthetic intelligence is a powerful mode that impacts the learning process and enrichment of the brain.

Parents have a significant role to play in empowering kinesthetic intelligence at home. This can be done through many informal inputs while speaking, playing and spending time with the kids.

Neurophysiologist Dr. Carla Hannaford observes “The vestibular (inner ear) and cerebellar system (motor activity) is the first sensory system to mature. The semi-circular canals of our inner ear and vestibular nuclei are information gathering and feedback mechanisms that inform our movements. As impulses travel through nerve tracts back and forth from cerebellum to the rest of the brain, including the visual system and sensory cortex, the vestibular nuclei help fine tune our movements and also activate the reticular activating system (RAS) near the top of the brain.

The reticular activating system, which receives incoming sensory data, constitutes our attentional system. The interaction between the two systems helps us keep our balance, translate thinking into action and coordinate body movements. Typical playground games and motions like swinging, rolling and jumping stimulates this system. When we don’t move and activate the vestibular system, we are not taking in information from the environment.”

The above observation puts across in clear terms the need for kinesthetic movements as they have a significant role to play in the learning process.

Research also indicates that “deprived of sensory stimulation, infants may not develop the movement-pleasure link in the brain. Further, there is a growing concern that some infants deprived of touch, movement and/or interactions may grow up to have a violent disposition.”

In the instant society, where there is a deep concern about the increasing amount of mental violence among the younger generation, the above inputs do give a powerful message to the school community about the need for more physical and motor activity at the formative years. These have to be seen in the context of building the emotional profile of the learners.

Let us see more on kinesthetic intelligence in the next few issues

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More on kinesthetic intelligence

In one of my recent visits to a school in a remote part of the country I observed the teacher asking the students in upper primary and I standard to put water on a small quantity of the wheat flour and use their fingers to make a paste. She informed that this helps in better flexibility in the fingers, co-ordination, developing synergy and what not. Schools can identify and perform a large number of activities to promote motor skills among the learners in the formative years.

In their book "Brain Re-engineering" Dr. N.S.Srinivasan and Dr. G. Balasubramanian, observe: "Gross movement helps the infant to transform into a toddler progressively evolving better motor circuits in the motor areas for control and coordination. When toddlers use objects such as pencils and crayons they are practicing their fine motor skills. Fine motor skills involve the many small muscles in the fingers, hand and wrist muscles over which the toddler is slowly but surely gaining more control and coordination. This slow improvement in tasks such as drawing, fitting shapes in a sorter or using spoon and fork etc., depends on the continuing development of the motor and the cognitive systems in the brain."

Schools and teachers need to understand the importance of such physical and biological developments of the learners and need to design the pedagogic strategies in a suitable manner appropriate to their age and psyche. Increasingly our school systems are becoming classroom oriented and the kids are not taken out to the playgrounds at frequent intervals. Certain schools tend to supplement the inadequacy of space through some play activities in the classroom itself. Inappropriate toys, playing tools which keep them mentally busy without any motor activity is hampering the holistic growth of the learners.

At the primary level there should be a significant focus on the kinesthetic learning. Some essential components of the curriculum should include:

- Games and sports
- Mass drill
- Athletics

Martial arts
Folk games
Gymnastics
Dances
Breathing exercises
Yoga

I also understand that parents have a biased concern on text-based activities and rather believe that these are lesser essential components for a consumerist society. I think most of them are sadly mistaken. Without well-coordinated body-mind intelligence, they will develop into unbalanced personalities suffocating with inferiority complex at a later part of life.

Here is an interesting piece of information for you:

"Dr. Peter stick, from veteran Affairs Medical centre of Syracuse, New York traced a pathway from the cerebellum back to parts of the brain involved in memory, attention and spatial perception. Amazingly, the part of the brain that processes movement is the same part of the brain that processes Learning."

There can no better evidence to show why kinesthetic inputs are important to the growth profile of our learners.

I recall a statement in an earlier issue whether we can integrate dances in teaching simple concepts of Mathematics? Can we use our physical education classes more meaningfully and effectively; can the physical education and mass drill be organized in a better focused manner so that we get the desired results? Is it possible to identify the kinesthetic learners in the classroom and provide them with more support? It is not a tall talk. There are people who have experimented. Why doesn't each of our schools take a step-in innovative teaching?

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What do the research findings indicate about kinesthetic activities?

Ben Jessen observes "Some early studies indicated that if our movements are impaired, the cerebellum and its connections to other areas of the brain are compromised. These findings, strongly implicate the value of physical education, movements and games in boosting cognition." Dr. Larry Abraham of the Department of Kinesiology in the university of Texas in Austin states " Physical education, movement, drama and the arts all add, rather than detract, from the 'core curriculum.' The U.S Presidents council on fitness and sports states: that all the K-12 kids need at least thirty minutes a day of physical movement to stimulate the brain.

It is important for the schools to understand:

What kind of physical movements and exercises are given at the primary level and then progressively?

Are these exercises focused and energizing rather than dissipating the existing energy?

Do we have physical movements in the classroom?

Can the physical movements be used by different subject teachers to keep the students alert, active and attentive in the classroom?

Can the teacher identify the students with inadequacies in their physical movements in one or the other part of the body and advice for appropriate remedial actions?

What kind of simple exercises could be suggested to the students to increase:

Concentration

Focus

Speed

Agility

May be, the physical education teachers and the counselors of the school could sit together and analyze/experiment some specific cases for improvement. The dance and the physical education teachers can sit together and evolve some simple common strategies to bring synergy between the objectives of their disciplines. The science teachers can identify the students good in practical work and inadequate in the cognition/concept consolidation and discuss with the counsellor/physical education teacher to facilitate them to improve their scores. Here is a research finding useful to the language teachers:

"In one study in Washington, third grade students studied language arts concepts through dance activities which included regular spinning, crawling, rolling, rocking, tumbling, pointing and matching. Although the district wise grades the annual decrease of 2 percent, the students involved in the dance exhibited an increase in the reading scores of 13 percent in six months. "

Dr. Mark Hallet, from the National institute of neuroanatomy says that excellence in physical performance probably uses 100 percent of the brain. There is no known cognitive activity which can claim this. Research findings at the Salk Institute in California shows hat regular exercises stimulate the growth of the new brain cells and prolong the survival of the existing cells.

The physical activities have an impact not only during the formative years but throughout the life cycle. Possibly, the schools may even think of some scheduled physical activities for the teachers for about 15 minutes everyday in the school premises so that they are more agile and active in the school premises. (This is to be done not as a compulsion, but as a voluntary participation. I am confident that once the teachers are convinced they would participate with enthusiasm as they may not have anytime otherwise for physical exercises!) I understand such practices do exist in some organizations.

G. Balasubramanian

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Experiments with kinesthetic intelligence

Dr. Gerald Grow observes: The core elements of the bodily-kinesthetic intelligence are control of one's bodily motions and capacity to handle objects skillfully (206). Gardner elaborates to say that this intelligence also includes a sense of timing, a clear sense of the goal of a physical action, along with the ability to train responses so they become like reflexes. Along with these, you often find a high degree of fine-motor control and a gift for using whole body motions.

Dr. Grow further working on the impact of kinesthetic on the learning of languages writes: Consider how many kinesthetic expressions apply to the experience of reading. We speak, for example, of being "touched," "taken," "gripped," "led," "held." We "grapple" with difficult subjects and have "gut wrenching" experiences. Our stomachs turn. Our hearts leap. Our breathing quickens. We may tremble, sigh, and be "moved." These responses are rooted in kinesthetic experience. Jacobson presented evidence that all emotional responses are rooted in finely tuned kinesthetic awareness. We know our emotions through the intelligence of the body; any writer who wants to affect the way readers feel must find a way to touch the kinesthetic intelligence with words

Focusing on the writing skills and the impact of kinesthetic intelligence he describes: "Kinesthetic writing may be action oriented. It may also be tactile, motile, and muscular. More subtly, the kinesthetic intelligence might be what makes a piece of writing feel down to earth, real, physical, funny, and vital. If the kinesthetic intelligence is strong in a piece of writing, something beyond its thinking and verbal facility is likely to grab you at the gut level

He continues to make his point obvious through the following words:

"A writer who gropes for a way to say it that "feels right," may be seeking words that re-create the bodily component of an experience. This kind of writing is different from the translation of ideas or mental images into words; it is the creation of words which occasion a particular bodily experience, or which resonate with a complex and detailed bodily "map" of an experience."

Recent research shows more convincing propositions to focus on the kinesthetic activities in schools.

Research findings of the neuroscientists at the University of California indicate that exercises trigger the release of BDNF, a brain-based neurotrophic factor. This natural substance is believed to enhance cognition by boosting the ability of the neurons to communicate with each other. Experiments conducted with aging rats who were made to exercise on a running wheel, showed remarkable increase in the levels of BDNF as compared to the non-exercising rats. This is believed to increase long term potency of the memory.

In another research conducted on young person engaged in continuous aerobic exercises, they were found to have better short-term memory, faster reaction times, and were more creative than noni-aerobic exercisers.

All the above information should help the heads of institutions to think more broadly, yet comprehensively and understand that the exercise of a building a curriculum and appropriate pedagogy calls for wider initiatives and thought processes. Any curriculum and pedagogy that is text-centric, examination-oriented is more a roadblock to the process of holistic growth and learning

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Inter-personnel Intelligence

In an increasingly globalized world, there is an increasing felt need for inter-personnel intelligence. The inter-personnel intelligence is a very essential and critical component in the development of the holistic profile of an individual. Some of the competencies required under inter-personnel intelligence can be listed as follows:

- u Respect for other's views
- u Capacity to listen
- u Patience
- u Cooperation
- u Maintenance of individuality
- u Enabling a shared vision
- u A sense of team spirit
- u Ability to assert
- u Ability to accept a joint decision

The first trait of an individual with effective inter-personnel intelligence is the ability to respect other views. This would be possible only when the individual is able to establish a rapport with others. Accepting the self as well as others in their existing stature and status, ability to appreciate the strengths of other's, ability to accept the weakness of others without exploiting them, ability to empathize with others whenever called for, ability to appreciate and praise other's whenever due, offering others the rightful opportunities they deserve in inter-personnel interactions, appreciating others point of view in the context and circumstances in which they are being aired are some of the basic requirements in the development of inter-personnel intelligence.

All the above characteristics call for higher qualities of head and heart, through which one is able to accommodate others in the universe of their thought process. It needs to be understood that every individual is unique, the potentials of each individual is different, and that every human

being operates through their own psyche. Once this is understood and accepted, it would be possible to accept and respect others in proper perspective. It is also important that the respect of other's views is often impacted by the perception about their financial, social, cultural, religious and other designs. These considerations would lead to a subjective treatment of the relationship and is not desirable. It is also seeming that in some cases gender considerations impact the consideration of views. This is again neither a desirable nor an objective perception. The respect for other's views should be exclusively based on the merits of the views. Even if one strongly disagrees with the views expressed by others, it should not lead to contempt, satire, ridicule or other's methods of rejecting the people. Appreciation of diversity is a great human trait. Schools and Heads of organizations should build in these concepts through formal and informal inputs in the curriculum.

The first few lessons for respect for other's views have to start with the family and at home. Parents should play role models by exhibiting such traits both visibly and invisibly in their relationship with other members of the family. They should train the children at home to respect others even in most trying and provocative circumstances.

As the children grow and especially when they step into pre-adolescence, exhibition of indifference, refusal to authority, non-compliance to instructions and order, questioning the established views and systems become evident. Parents should learn to deal with them in an effective manner not through authority but by effective methods of counseling. Disrespect for others' views in adolescence arises in most cases consequent to an identity crisis, especially when children look for a meaning to their own existence, when they look forward to recognition, when they find no meaningful channels to pipe out the energy from the body and mind. They have to be understood in the proper context and both family and the school should work in tandem to help the individual grow with harmony.

This first lesson in inter-personnel relationship is quite significant and the life skill education in formative classes provides a lot of scope to relate the personal self with the social self and the universal self.

G. Balasubramanian

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Inter-personnel intelligence -2

(Capacity to listen)

Listening is a great art. Listening differs from hearing. Hearing is usually an informal exercise with either no or little commitment to the person from whom words are being heard.

Listening invokes the following competencies:

- Attention
- Patience
- Understanding
- Commitment
- Empathy
- Sincerity

While listening, the listener has to be attentive to the words, ideas, concepts, themes, non-verbal signals and emotions of the person whom one is listening. Listening helps in formulating opinions, understanding the feelings, enabling objective decisions and in diffusing crisis. When the listener shows attention to the person with whom he or she is communicating, the person who speaks takes responsibility for what he or she says. They tend to stay focused and communicate effectively

Listening calls for exercise of patience. Any exhibition of impatience de-motivates the speaker and breaks the confidence and trust in the person who is listening. Listening patiently often enhances the comfort level and the disturbed emotions of the person on the other side. It elevates the profile of the listener and acts as a testimony to the trust the speaker can repose on the listener. Inter-personnel relationship remains always strong if the persons involved in the relationship are active listeners of each other.

It is important that in a family system, the parents should provide adequate time and occasion for listening to the feelings of their wards. It provides a sense of security enhances the level of confidence and improves the trust between the members. The inability of the parents to listen to

the words and feelings of the adolescent often leads to frustration, mistrust, aberrations in behaviour; and provokes them to seek alternate platforms for seeking comfort.

The ability to listen empowers one to take considered and acceptable decisions. It is a demonstration of the level of understanding that exists between the players. In an organization, the competence of a leader or a manager is normally tested by their ability to listen to their colleagues and subordinates. This leads to developing shared visions, involving people in decision making, creating an ownership in the discharge of their duties, in many organizations, appraisals of the individuals are usually done after a patient and honest listening to their views and opinions.

Says Daniel Goleman in his book "*Social intelligence*", all communication requires that what matters for the sender also matters for the receiver. By sharing thoughts as well as feelings, two brains deploy a shorthand that gets both people on the same page immediately without having to waste time or words explaining more pointedly what matters are on hand."

Listening enables in improving the level of commitment of the speaker in the relationship. In marketing and business world, the ability to listen improves the profile of the marketing person and enhances the trust of the dealer with the producer. In normal business environment, it increases the customer satisfaction level. Among professionals like doctors and lawyers, the ability to listen to the narrations of the customers is considered as the prime quality index.

In a classroom, a teacher has to be a good and a patient listener. When the students feel that they are being listened to with the attention it deserves, they feel close to the teacher and their comfort level in the relationship is improved. Counsellors, in schools, need to lend a good ear to their students.. The students tend to open up their hearts and emotions to the counsellors once they know they are being heard attentively and their emotions are appreciated.

More on listening in the next issue...

G. Balasubramanian

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Inter personnel intelligence -3

(Capacity to Listen)

Listening is an indicator of the commitment of the listener to the person with whom communication is happening. In most cases the psychiatrists try to create a situation where the patient feels that the psychiatrist/counsellor is actively committed in an engagement with him or her. This boosts their level of interaction and facilitates the identification and treatment of the problem. In a classroom situation, when the teacher listens carefully, it helps the teacher to identify the problems faced by the students. In many cases, the students don't come out openly with their problems like an estrangement between the parents, the environment of a broken, the ordeals of the joint family, their understanding of the domestic and financial crisis, their social and cultural concerns, their physical and emotional inadequacies. When the teacher shows signs of empathy, consideration, understanding and commitment, the students open up and pour out their hearts to the teacher. This helps the teacher and the school in getting a correct perspective of the problem and in designing their approaches.

Goleman observes "Attunement is attention that goes beyond momentary empathy to a full sustained presence that facilitates rapport. We offer a person total attention and listen fully. We seek to understand the other person rather than just making our own point.

Such deep listening seems to be a natural aptitude. Still, as with other social intelligence dimensions, people can improve their attunement skills."

One of the major concerns of the present-day school environment is the increasing mental violence in the young minds. A careful analysis of the situation will clearly indicate that in most cases, it is the inadequate attention given by the parents and the school to their emotional trauma. It is important for parents as well as teachers to observe, watch, monitor, talk and listen to the students so that they do not go astray from the path of righteousness.

How can the skills of inter-personnel intelligence be improved in a school environment in which the skills of listening get focused?

The following strategies might help:

Organizing group discussions

Teamwork

Peer evaluation

Deputing the students to interview prominent people

Field trips to the organizations dealing with challenged persons, old age homes, hospitals etc.,

Promoting theatre and role plays

Mock parliaments

Reciting poetry and seeking commentaries

Listening to talks and News

Some of the exercises listed above also promote the quality of empathy in the young minds.

Empathy is a significant characteristic in the perfection of the holistic personality. It enhances the humaneness of the individual. It helps to feel others in a right perspective and help them in context.

Daniel Golemann considers empathy a powerful instrument in promoting inter-personnel intelligence. He observes that when two persons get involved actively in a discussion, there is a rhythmic dance in play. He describes the following features:

"When two persons enter into an involved conversation, it becomes a mutual mimicry.

The following things synchronize-

- Rhythmic harmony
- Movement
- Postures
- Vocal pitch
- Rate of speaking
- The length of pauses"

Before you get into the next issue, why don't you watch this rhythmic dance when you are conversing with your near and dear ones?

G. Balasubramanian

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Inter-personnel intelligence -4

(Gateways to Empathy)

Exhibition of empathy has to be genuine. It is said that the first few lessons of empathy are learnt in the mother's arms. The warmth and love expressed by the mother to the baby on the hand communicates innumerable inputs, which are only recognized through feelings.

Home has a great role to play in developing a sense of empathy in the young minds. Small but significant moments and events at home provide a lot of opportunities to exhibit, teach and practice the sense of empathy. It helps in enlarging the heart of the empathizer and broadens his understanding of the universe of operation in human interactions. The initial conversations between the children and the parents are very critical in enabling and appreciation of empathy. A discussion across the dining table opens up a world of opportunities to make the children understand the need for empathy. Empathy opens the gateway to unconditional love and an approach to meaningful social service. It is a strong input to value inculcation in the young minds.

Listen to what Mary Kan Ash has to say: "My advice to salesmen is this: pretend that every single person you meet has a sign around his or her neck that says, "Make me feel important". Not only you will succeed in sales, you will succeed in your life." How true is it! It is true not only for salesmen but for each of the parents and teachers to create a trust in the younger ones that they are seen as important people – people who are cared, people who are lived, people who make a meaning to life, people who are important!

Some service-oriented activities organized in the schools would help in this direction. It is important to note that these activities should not be conducted more as a ceremony or an event to be ticked in the calendar of activities of the school, but their real meaning and significance have to be brought out: The activities may include:

- Road safety Patrol
- First Aid
- National Service Schemes
- Scouting

· Volunteering

The schools should use their prefect systems as instruments of training in empathy rather than discipline. This idea can be extended even to other leadership profiles given to the students in the school environment. This would go a long way in identifying, bringing out, nurturing the talents which lie normally hidden and unknown among the student community for various socio-economic reasons.. Says Rosalyn Carter "A leader is one who takes the people where they want to go. A great leader is one who takes the people where they don't necessarily want to go, but ought to go." In this context, the teacher is a great leader – he takes the people where they ought to go!

Empathy is not necessarily expressed through words. A lot of many of the empathetic expressions are non-verbal. The first gateway to the expression of empathy is the eye movements. They reflect the quality and quantity of the consideration one has for the subject concerned. The movement of arms, the body movements, the positioning and the stiffness of the body and several other body communications convey a lot of information both desirable and undesirable. Hence the students need to be trained about their body language as an effective tool of communication with a special focus on empathetic expressions. " Sometimes the news is in the noise, sometimes the news is in the silence" says Thomas Friedman, a well-known journalist of New York Times and the author of the book " The world is Flat."

Some relevant inputs regarding empathy are:

- ★ Postures indicate whether you are genuinely empathetic or not
- ★ Empathy is a learner ability and not learnt in isolation
- ★ Empathy is not necessarily being soft-hearted
- ★ Teachers need to socialize isolated students
- ★ Empathy is an essential requisite for a good counsellor

Teachers often become victims of empathy distress. A few examples are:

- ★ Branding Low income group learners as poor learners
- ★ Hyperactive students as non-attentive and incompetent
- ★ Pro-active classroom as a set of "mischief mongers"
- ★ Declaring a non-participative student as " a gross failure"

Can we be a little more alert about the above in our classrooms?

G. Balasubramanian

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Inter-personnel intelligence -4

Developing Social intelligence

A smile, a loving action, a word of thanks, an invisible help, a comforting touch and so on... there can be many ways of empathizing. When it really comes to children, a teacher needs to understand the feelings and emotions of the child and lend her emotions in a soothing way so that they child feels the teacher proximate, not only to the person but to the heart. The inter-personnel relationship between the teacher and the taught is something which carries its images and reminiscence till both breathe their last. Here is an anecdote which is quite touching: (extracted from *Everyday Greatness* by Stephen R. Covey)

Dr. William I. Stidger sat down and wrote a letter of thanks to a schoolteacher for having given him so much encouragement when had been in her class thirty years before. The following week he received an answer written in a very shaky hand. The letter read:

'My dear Willie, I want you to know what your note means to me. I am an old lady in my eighties, living alone in a small room, cooking my own meals, lonely, and seeming like the last leaf on the tree. You will be interested to know, Willie, that I taught school for fifty years and in all this time, you're is the first letter of appreciation I have ever received. It came on a cold, blue morning and cheered my lonely old heart as nothing has cheered me in many years.'

It is important to teach the children that small and simple acts do matter in establishing an excellent inter-personnel relationship and conveying a meaning which days of work may not convey.

The inter-personnel intelligence is very important in a social context. Says Daniel Goleman "Social intelligence shows itself abundantly in the nursery, on the playground, in barracks and factories and salesrooms, but it eludes the formal standardized conditions of the laboratory." Inter-personnel relationships are often built on emotions and most often emotions drive the inter-personnel relationships. Hence teachers need to educate the students in the classroom about the effective use of emotions so that positive relationships are built. In a world haunted by emotional consumerism, there is an increasing apathy about the inter-personnel intelligence and bridges. As a part of Life skill education, schools may venture on mock exercises on the following:

- Conversation
- Briefing
- Describing
- Negotiation
- Argument
- Narration
- Reporting

Students as a couple can sit together and practice several forms of these exercises which could be even a part of language teaching – speaking and listening skills. It is important that in the course of the above practices, the students should be trained:

- To hold their emotions
- To reduce their impulsivity
- To respect others point of view
- To reason others views against their own
- To understand the circumstances in which the statements are made
- To behave in provoking circumstances
- To assert themselves when called for.
- Let us understand that inter-personnel intelligence lies not in submission, not in slavery, not in meekness, not in exhibition of ego and arrogance, not in seeking or giving praise – but in bringing harmony between the people through effective use of emotions and the intellect.

Let us see more of it.....

G. Balasubramanian

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Inter-personnel intelligence (6)

Making a right choice

In his book "*Principle Centred Leadership*" Stephen R. Covey observes: "Building harmonious relationships and achieving mutual understanding can be difficult. We all live in two worlds – the private subjective world inside our heads and real, objective world outside. We could call the former personal "maps" and the latter the "territory." None of us has an absolutely complete and perfect map of the territory or of the real, objective world. While scientists constantly attempt to make better and better maps, only the creator of the territory has the complete, perfect map."

He adds: "Effective two-way communication demands that we capture both content and intent and learn to speak the language of logic and emotion.. The language of logic and the language of sentiments are simply two different languages, and of the two the language of sentiments or emotions is far more motivational and powerful. This is why it is important to listen primarily with our eyes and heart and secondarily with our ears. We must seek to understand the intent of the communication without prejudging or rejecting the content. We can do this by giving time, being patient, seeking first to understand and openly expressing feelings.

I think the message is clear. In an educational context, the teachers need to listen with their eyes and heart than merely through ears. The unspoken words of the students are more important than their spoken words. That sends the required message to the teacher on how they should deal with each and every child individually. The teacher may not agree to what is said but they have to appreciate the context in which the message is sent.

Norman Vincent Peale quotes in his book the words of a famous piano teacher: "We learn much from the disagreeable things people say, for they make us think; whereas the good things only make us glad." Quite often many people tend to spill the heat as a bad testimony of their inter-personnel relationship. A few tend to set score cards for revenge. They tend to hate the people for what has been said or what is being said. H. W. Fosdick makes an interesting statement: "Hating people is burning down your own house to get rid of a rat." We need to know as said in a French proverb: " Write injuries in the sand and kindness in the marble." Napoleon Hill remarks in his book "The Law of Success": "The educated man is the man who has learned how to get

everything he needs without violating the rights of his fellow men. Education comes from within; you get it by struggle and effort and thought."

Abraham Lincoln was haunted frequently by a stream of criticisms. People used to wonder how he digested them and why he didn't react. He replied: "If I tried to read, much less answer, all the criticisms made of me and all the attacks leveled against me, this office would have to be closed for all other business. I do the best I know how, the very best I can. I mean to keep on doing this, down to the very end. If the end things bring me out all wrong, then ten angels swearing I had been right would make no difference. If the end brings me out all right, then what is said against me now will not amount to anything."

It is important to learn the ability to hold on to oneself in most provocative situations. Describing several psycho-analytical experiments, Daniel Goleman comments: "Rather than, say, being flooded by someone who is hysterical with fear, we can stay cool and come to their rescue. If someone simmers with agitation that we would rather not share, we can buffer ourselves against contagion, absolutely remaining in our preferred mood.

The full panoply of life engages us with endless permutations to reacting to any of them.,,"

It is time for us to learn to make right choices!

G. Balasubramanian

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Inter-Personnel intelligence (7)

The individuality of a learner

Maintenance of individuality is an essential feature of a good inter-personnel intelligence. In negotiating, convincing, canvassing others one cannot afford to lose the uniqueness of the individual self. It is important to drive home to the person with whom a business is being transacted or a conversation, that you respect the self and it can not be diluted or dissolved. It is a great art to preserve the uniqueness of the self, without it getting distorted both by the internal and external influences. It is important; therefore, we need to develop a self-concept and an understanding of our own selves- what we are, what we are capable of, what we intend to do and where should we go and how should we go. If one doesn't know where he is going, it matters not which road he takes. But, remember, we have a message – a message to give unto this universe, a powerful message for which we have been brought unto this beautiful planet. The objective of education is to unravel this message, to create a faith that one is capable of giving this. Anthony Robins observes in his book "*The Law of Success*", " It will make a big difference whether you are a person with a message or a person with a grievance."

If you think that you are a person with a message, you have to work towards that. Listen to that call for understanding your uniqueness. How do we understand our uniqueness or make our students believe that each of them is different from the other, a source of energy that can impact their environment – both physical as well as emotional?

Teachers should nourish and nurture the individuality of the learners by:

- Treating them equally
- Giving each of them opportunities
- Encouraging their feelings and expression
- Commending their individual achievements
- Facilitating them to identify and nurture their talent
- Diffusing competitiveness in the classroom
- Objective evaluation of performance
- Using positive verbal and non-verbal communication

It is unfortunate that in most of our classrooms we tend to identify the best of the lot and project their images by demeaning others worth. It appears that any child who is unable to succumb to the mental attitudes and aptitudes of the teacher is negated. We tend to evaluate their performance from what we want than what they are capable of. We do not project the individual competencies or uniqueness of the learner but tend to measure them in terms the normalized paradigms of a classroom. In these circumstances, the individuality of the learner gets marginalized. For display of effective inter-personnel intelligence, the individual should have faith in one's own competencies and the faith can emerge only when it is nurtured from the childhood. The school and teachers have a great role to play in this regard.

In classroom environments, most often the unique skills and competencies are held irrelevant, non-curricular, out of focus and wild. We tend to suppress the sense of enterprise of the individual by saying that for the concurrent society those skills are not called for. Mother Teresa once remarked; " We ourselves feel that what we are doing is just a drop in the ocean. But the ocean would be less because of that missing drop." It is important to note whatever the skill the learner has, whatever uniqueness the learner has – needs a close, considerate and passionate attention by the teacher. That passion alone will help the learner to address to his or her own passions. It is also important to teach the younger generation to motivate themselves. Andrew Carnegie observes: "People who are not able to motivate themselves must be content with mediocrity, no matter how impressive their other talents."

This calls for a sense of trust in the younger ones. If we do not trust them and are suspicious about what they do, we do not set a right platform for our own inter-personnel relationship with them. The following words of Mahatma Gandhi are quite significant "The moment there is a suspicion about a person's motives everything becomes tainted." A situation of that kind has to be avoided in the classroom.

G. Balasubramanian

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Inter-personnel intelligence (8)

Bridging the gap

Benjamin Disraeli observes: "The greatest good you can do for another is not just to share your riches but to reveal to him his own." The role of the school and the teacher is to reveal the riches owned by the learner and latent in him. This is a great empowerment and this empowerment boosts his profile in establishing a good inter-personnel relationship. A person who is diffident of himself, who is least enterprising, who holds a low self-esteem, who suffers from the strength of the other will never be in a position to raise his eyes to look into those of the people whom he or she meets. Mahatma Gandhi observed in one of his writings: "The difference between what we do and what we are capable of doing would suffice to solve most of the world's problems" The role of education is to fill this gap. Creating even awareness about this gap, motivating an individual to take a few steps in the right direction is good enough for a teacher to do.

One of the major problems in the present-day classrooms is unrealistic expectations both from the parent and the teacher. The standard set for the students is so high and the deadline for performance is so short, the students tend to falter and get a sense of defeat. Latest researches on Brain-based learning indicate very clearly that each brain sets its own priority depending on the social, economic, cultural, geographical and other needs. This really hampers the time for peer interaction and social interaction. It creates an invisible divide in the minds and the psyche of the learners. They tend to draw circles of their own for interaction and with others they tend to stand on a rejecting or fighting mode. A recent study by American Manufacturing Association among corporate sectors reveals that the number one reason for unethical corporate behaviour is unrealistic expectations. The study reveals that for achieving the targets, people tend to start cutting corners and indulge in unethical things.

Yet another serious issue that arises out of a poor inter-personnel relationships is mirroring. People are quite often carried away by what others are and what others do; hence tend to mirror their achievements and actions. It is important to know that what is true of one need not be true to another for the attitude and aptitude of each individual is different. The success stories of others often drive us to follow the tamed path, thereby killing the individuality or the uniqueness that we possess. Role modeling is good to the extent – the processes have to be understood than

the eyeing at the products. Jesse Owens remarks: "The battles that counts aren't the ones for gold medals; the struggles within yourself – the invisible, inevitable battles inside all of us – that's where it's at."

Schools would, therefore, do well to help the students to understand themselves with their strengths and weaknesses – to make them believe that strengths are sources of energy and forces that drive us to success; but weaknesses – are not necessarily sources that deplete energy, if one understands them properly; further weakness need not drive us to failures. It is the understanding and faith one has oneself that matters. Stephen R. Covey observes in his book "*The speed of Trust*": " The view we have for ourselves affects not only our attitudes and behaviour, but also our views of other people. In fact, until we take how we see ourselves – and how we see others – into account, we will be unable to understand how others see and feel about themselves and their world, Unaware, we will project our intentions on their behaviour and think ourselves objective"

He adds: "The antidote for a poisoned self-image is the affirmation of your worth and potential by another person." Continues Covey, "To affirm a person's worth you may have to look at him with the eye of faith and treat him in terms of his potential, not his behaviour."

I think the last sentence carries a powerful image. Does it?

G. Balasubramanian

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Inter-personnel intelligence (9)

Enabling a shared vision

No man is an island. He or she is a part of a bigger society. He or she needs to work with people in the family, in the neighbourhood, in the workstation, in the marketplace and elsewhere. One has to respect the laws of the land, the social demands, the heritage and culture. One needs to learn understanding and appreciating others point of view and develop a shared vision so that he can work as a part of a team. One cannot thrust or force his own views and opinions on anyone else. Developing a shared vision as a part of a smaller or a bigger team calls for acute sense of inter-personnel intelligence. It is important that classrooms and schools should provide adequate platform for development of shared visions.

In a globalized world, multi-level and multi-lateral communication calls for close and intense interactions based on common visions and intense collaboration. Schools can enlist a large number of activities both in the classroom and outside where the team matters than the individual. The schools can organize simple roundtables, brain storming sessions where the students will negotiate each other's views, learn skills of advocacy and arrive at a common acceptable view. The third step of the four pillars of learning "Learning to live together" very much emphasizes on this point. This focuses on tolerance for others perception, others modus operandi and others scheme of things. It is a great quality to be developed in the childhood. Says, Helen Keller "Tolerance is the first principle of community; it is the spirit which conserves the best that all men think. No loss of flood and lightening, no destruction of cities and temples by the hostile forces of nature has deprived man of so many noble lives and impulses as those which his intolerance has destroyed." How true is the statement? History is evidence to the above argument.

A study conducted at Stanford on about 40 students to differentiate between those who were more impulsive than others indicated that less impulsive people scored higher marks in competitive examinations and scaled higher peaks of life as compared to those who were more impulsive. You might have watched such a scenario in your classrooms and in the performance of students in the examinations – that their impulsivity caused them more loss than their lack of knowledge.

To enable a shared vision in a group it is imperative that the members of the group establish healthy connections. The gross group happiness should precede the happiness of any single member of the group. This requires ability to sacrifice, ability to adapt, ability to cooperate and ability to accept. In the traditional Indian family system, many of these qualities were embedded in the daily routine. There was greater giving than acquisition. People considered the need and relevance to care for others interests and needs. The family had a shared vision. This is absent in the modern small families where the personal interests have acquired predominance over that of the common interest. The biggest challenge for the educators of the future is how they are going to develop these qualities.

Simple activities can be entrusted to the students to discuss, plan and execute shared visions like:

- Organizing an elocution competition or a similar event
- Planning for the annual or a sports day
- Planning and executing a school exhibition
- Planning and organizing a field trip or a tour
- Developing the concept of discipline in the school

Developing the core values to be practiced by them both inside and outside the school
The schools can plan innumerable activities on similar lines by involving students and allowing them to develop their own concepts, develop a shared vision for each event or a program and work as a team in executing the same.

Shared vision, apart, this would be an exercise for the future leaders.

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Inter-personnel intelligence (10)s

Working in a team

Henry Ford observed: “**Coming together is the beginning. Keeping together is progress; Working together is success.**” One of the most critical requirements of the globalized world is the ability to stand together and work together. Working together calls for the following competencies:

- Understanding the strengths and weakness of others
- Appreciating diversity of thoughts and actions
- Respecting others point of view
- Allowing time and space for others to work
- Negotiating ideas and procedures with others
- Managing conceptual and emotional differences
- Contributing the best without inhibitions
- Accepting the success of the team than individual contributions

From time immemorial, the concept of working in a team has been emphasized through fables and stories and the idea is usually sown in the curriculum of the primary classes itself so that it gets blended into one’s thoughts and emotions.

- 1. Playing in a team is an art as well as a skill.** It calls for courage as well as respite. It calls for self-actualization as well as self-restraint. It calls for sensing the role as well as sensing the timing. It calls for unqualified initiatives as well as knowing the parameters of operations. It provokes a sense of sacrifice and empowers one for a fair play. It teaches the qualities of equality and fraternity in an informal manner. It provokes a s sense of sacrifice without yielding the personal rights.
- 2. A team is an exercise in synergy development.** The energy of each member of the team flows into it building the sum not in an additive manner but in the multiplication mode. It helps in building bridges between the loose ends of the concepts as well as actions. It reduces the time for struggle but distributes the joy of success in an undivided manner. In other words, the contribution and effort of each individual could be a fraction of the total effort, while the joy of the success and returns is enjoyed by everybody to the fullest extent.. It builds emotional bondage among the members of the team and brings

undefined relationship. It helps in accepting people as they are and in forgiving others for their inept and impertinent actions. It helps to enhance the humanness of each individual. It promotes organized knowledge and effective execution.

One of the basic requirements for developing a team is the Trust and Transparency among the constituent members. A team without mutual trust is no team at all. A person who trusts the team emerges as its leader, for he or she is adored and respected. A person who trusts the team is given the full support for others believe in his openness and benevolence. Says Warren Bennis, Author of the book *“On Becoming a Leader”*: “Leadership without mutual trust is a contradiction in terms.”

Some of the basic qualities each member of the team should exhibit to obtain enhanced team spirit are:

- To listen
- To share experiences
- To facilitate knowledge
- To demonstrate respect
- To extend Trust
- To create transparency
- To Talk straight
- To ensure accountability
- To share the feelings

In simple terms the words of Goethe conveys a lot of meaning; **“Let everyone sweep in front of his door, and the whole world will be clean.”**

We will see in the next issue how we can encourage the same in the school environment.

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Inter-personnel intelligence Building a team

A school environment provide adequate opportunities for a developing the concept of a team. Right from the time the school starts functioning, the Head of the school can organize a stream of activities for the entire school. The morning school assembly in itself is an excellent platform for promoting and facilitating team and synergy among the school populace.

In a school situation, one of the normal issues encountered by the teachers and students in developing the team is the conflict in the self-identify of the students. We need to remember that each child craves to seek his or her identity and no exercise in the organization shall act as a deterrent to the same. Believe, the team is not a threat to the self-identify of the members of the team. As such it helps in clarifying and shaping the correct perspective of the identity of the individual. It helps the individual to evaluate his own perception of his or her identity in a societal context and redefine one's own identity in the most appropriate manner.

Encouraging the individual as well as collective activities is important. It helps in social re-engineering in the school from time to time. It diffuses the super-ego of an extrovert and motivates the suppressed ego of the timid. It helps each member to identify his own team and the perimeter of his operations. A well-structured team is a source of joy, a social organization that facilitates an excellent interplay between the 'personal self' and the 'social self.'

Read this poem by Walt Whitman – “**I sing the Body Electric**” (quoted in the book-*Social Intelligence* by Daniel Goleman)

*I have perceiv'd that to be with those I like is enough,
To stop in company with the rest in evening is enough,
To be surrounded by beautiful, curious, breathing, laughing flesh is enough...*

*I do not ask for any more delight, I swim in it as in a sea.
There is nothing in staying close to men and women and looking at them
And in the contact and odor of them, that pleases the soul well,
All things please the soul, but these please the soul well.*

One of the basic requirements for the successful team is its emotional compatibility. One should have the unique capacity of assuaging the hurt feelings of others and making a foe into a friend. This is a very special skill and calls for a high level of intellectual and emotional standards. It is not a defeat, but it is a great human endeavor in the pursuit of human excellence.

Says Edward Markman, “One of magnanimity’s finest rewards occurs when enemies are made into friends.”

**He drew a circle that shut me out-
Heretic, rebel, a thing to flout.
But Love and I had the wit to win,
We drew a circle that took him in.”**

It is important to keep one humble to win friends. One never should shoot more than he can ever hold. Boasting of oneself in a team wrecks the team sooner than it can be formed. Teachers would do well to train the children in learning some of the basics of team making. Can the students be asked to have a look at the film “**Chak the India**” – a good example in team making!

Lord Chesterfield once remarked: “**Never seem more learned than the people you are with. Wear your learning like a pocket-watch and keep it hidden. Do not pull it out to count the hours but give the time when you are asked.**”

The words of Albert Einstein reflect the same sentiments: “**A hundred times a day, I remind myself that my inner and outer life depends on the labors of other men, living and dead. I must exert myself in order to give in the same measure as I have received and am receiving.**”

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Intra-personnel intelligence (1) **The strength of knowing the self**

According to Gardner, “Intrapersonal intelligence refers to having an understanding of yourself, of knowing who you are, what you can do, what you want to do, how you react to things, which things to avoid, and which things to gravitate toward.”

A deep understanding of the intra-personnel intelligence is important for the holistic growth of the individual. As rightly indicated by Gardner the first step to inter-personnel intelligence is the understanding of self. Self-awareness only enables the individual to understand one’s strengths, latent potentialities and weaknesses. A person who is self-aware is able to understand both the strength and limitation of the individual. A lot of efforts are being taken across the world to conceptualize the entire idea under “Self Science.”

Commenting on the need of intra-personnel intelligence Armstrong writes in his article *"Intra-personnel intelligence is the self-knowledge and the ability to act adaptively on the basis of that knowledge. This intelligence includes having an accurate picture of oneself (one's strengths and limitations); awareness of inner moods, intentions, motivations, temperaments, and desires; and the capacity for self-discipline, self-understanding, and self-esteem."* (Armstrong)

The general characteristics of the people with this intelligence are

- **Aware of own strengths and weaknesses**
- **Usually well motivated and determined**
- **Possessing a strong sense of identity and purpose**
- **Probably prefers to work alone and may appear shy**
- **Reflective thinker: may appear to be a daydreamer**
- **A goal-setter.**

Some of the people who have made history and have carved out a place of eminence for them because of this trait are:

- **Socrates.**
- **Florence Nightingale**

- **Poet Kabir**
- **Mahatma Gandhi.**
- **Mother Teresa.**

People with intrapersonal intelligence are adept at looking inward and figuring out their own feelings, motivations and goals. They are introspective and seek understanding. They are intuitive and typically introverted. They learn best independently. It is very important to develop this quality in the young minds so that they acquire the ability to analyze things, the power of reasoning, the power of making choice and the power of self-actualization

It is the art and science of “Learning to Be”. People with excellent intra-personal intelligence tend

- To remain calm
- Are able to hold on to their self under provocations
- More moderately tempered
- Tend to think before they act
- Are able to give others their due
- Are self-driven
- Adept in management of their time and space
- Avoid gossip and are reflective
- Accept their self and the environment

Intra-personnel intelligence is a great life skill. Let us see in the next few issues how we can address some of these in our classrooms.

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Intra-personnel Intelligence (2) Self-Awareness

Self-awareness is the first step to intra-personnel intelligence. An individual who is not aware of his own self will quite often fight with the self as a bad workman fights with his tools. Daniel Goleman defines this **“as an on-going attention to one’s internal states.”** He adds **“In this self-reflexive awareness mind observes and investigates experience itself, including the emotions.”** It is important to develop this kind of reflection of the self right from the formative years of life. The learner needs to know what the self is made of and what relation does it behold with the external self –mainly consisting of the social self and the universal self. It is not necessary to let the learner in the beginning years to explorations to the world beyond, but it is absolutely essential to let one reflect. The absence of such competencies really imbalances the holistic growth of the learners; and later they “fall a prey to a company” or ‘do things because they have to be a part of the society’. The awareness of the self promotes the power of drawing the parameters of one’s world of actions and sometimes reveals the latent potentialities which one suppresses for the fear of the unknown. Rather, it is a gateway to understand the leader within the self.

Helen Hayes writes in her book **“Our Best years”**: **“We relish the news of Heroes, forgetting that we are extraordinary to somebody too.”** This strength of the extraordinary in us would surface only when we have the self-awareness. In a school situation, a teacher in the classroom needs to provide frequent and adequate opportunities for the young learners to have moments of introspection, and identify and list their strengths, competencies, desires, wishes, goals and direction of action. They have to be facilitated to sit with this list and debate with the self the opportunities, threats and challenges. This would enhance their power of analysis and take them to accept their strengths and weaknesses.

Self-awareness, in short means being **‘aware of both our mood and our thoughts about that mood’** in the words of John Meyer, a University of New Hampshire psychologist. Goleman states **“Self-awareness can be a non-reactive, non-judgmental attention to the inner self”**

In the instant schooling scenario, we do find an increasing sense of impulsivity and aggression in the young minds. The process of self-awareness and a few exercises in this direction would stimulate the young minds to think calmly and understand their relation to a situation in the right perspective. Impulsivity is consequent to the uncalled for and frequent judgment one makes

about people, situations and events. An exercise in self-awareness would help in delaying the amygdaline responses. It is said that most often we are reactive than active. It is also claimed that a near ninety percent of what we do are reactions than actions. Hence an exercise in meta-cognition, the ability to hold on under provocation would go a long way in shaping the profile of the growing younger generation.

Bob Proctor argues in the book *“The secret”*: **“Everything that’s coming into your life you attracting into your life. And it’s attracted to you by virtue of the images you’re holding in your mind. It’s what you’re thinking, whatever is going on in your mind you are attracting to you.”**

It is important, therefore, to culture the mind and this process of culturing the mind is possible only in the formative years. Please understand that it is not controlling the mind, it is not directing the mind, it is not suggesting to the mind – it is letting the mind to realize, to think, to analyze, to review, to decide and to own responsibilities for its actions. It is to make us understand the law of nature – beautifully put across by Michael Bernard Backwith **“We live in a universe in which there are laws, just as there is a law of gravity. If you fall off a building, it doesn’t matter you’re a good person or a bad person, you’re going to hit the ground”**

The cause-effect phenomenon is scientific. We need to let the mind understand the cause and know its effects. It is a step towards self-awareness.

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Intra-personnel intelligence (3) Some Indian perceptions

The Indian system of education had, for thousands of years focused on the development of the intra-personnel intelligence. The early approaches in Gurukula system emphasized the need for the learner to introspect, debate, question and validate the concepts and ideas that already existed. All disciplines of learning focused on a journey inward rather than outward. They stressed on “Learning to Be’ rather than “Learning to Become”. The learners were deputed on social and vocational explorations that made them wiser and worldly-conscious. Education was defined as a process that led to the development of head, hand and heart. There was no emphasis on speedy learning. Sri Aurobindo observed “The first principle of true education is that nothing can be taught.” Going further he observed: “The second principle of teaching is that mind has to be consulted for its own growth.” Whose mind? It is the learners’ mind. The idea supports the importance of intra-personnel intelligence. This explains the need for a meditative process of learning. Naradhapurana described “shanair vidhyam, shanair arthan, shanair parvatha arohanan” meaning “one has to learn slowly, assimilate wealth steadily and climb a hill slowly” Rather the focus was on stress-free learning.

Classical questions like “Who am I?” were a part of the introspection process which turned many into the arena of philosophy and spirituality. Siddhartha raised the questions about the self and emerged as Buddha. Venkararaman raised this question and emerged as Ramana Maharishi. Kabir raised this question in all social platforms to make people think beyond religion, beliefs and customs so that they can have congruent thinking in a pluralistic society. Treatise on philosophy gave answers to some of these questions in their own way. The Upanishads explained by saying “Thath Thvam Asi” meaning “Thou Art That” The exercise of finding “that” facilitated in synergizing the perceptions of scholars and gave food for thought for their intuitive mind. Nihilists came with the proposition “I am neither This, nor That” and conceptualized the ultimate as interposed between cognition and non-cognition. All religions, all social pursuits and all thought structures in the country facilitated the individual to be in constant search of their identity. Yogic exercises, Meditation and other occult practices created an environment where people with adequate intellectual interests could move towards the same goal, but through other efforts suited to their own interests.

Swami Vivekananda offered a social dimension to the spiritual pursuits and declared the service of the man as the service of the God. People were encouraged to examine the higher objectives

of human existence and bridge the distortions in creation through unconditional love and objective service.

All these indicate that we have moved a long way from the classical structures of questioning and finding answers. I have no quarrels on that because we are a part of a changing society and all changes social, scientific, economic, technological and cultural leave their impregnable impacts on human mind and the process and styles of living. But one needs to understand that preparation of students from the formative classes to a structured examination beyond after 10 or 12 years really deprives them from the benefits of an exploratory journey. “Education is not the amount of information that is fed into the mind that runs riot there..” said Vivekananda. It is therefore imperative that we stress on developing the intra-personnel intelligence in the formative curriculum.

As stated earlier, the process of self-awareness should be encouraged which would help the learner to find a meaning to his existence. The learner would be in a position to develop a self-concept. The self-concept is a vision of the individual in his or her own mind. It is one’s own understanding of the latent beauty inside. It is the foundation on which the individual can build one’s image and progress. Without self-concept, the journey of life will be like sailing on a rudderless boat. A few have been questioning me whether such exercise would be possible in schools and that too at the formative stage. I am convinced that it is possible. Our inability to provide the required inputs should not shadow our minds on the competence of the younger ones.

An individual with a self-concept will not overshoot his profile. An individual with a self-concept will not undermine his strengths. An individual with a self-concept will always see the better part of life and tend to be optimistic. An individual with a self-concept will be able to evaluate one’s functions and contributions quite objectively. It enables clarity of mind and triggers the dynamics of growth. The self-concept empowers us to move towards the purpose for which we have descended unto this beautiful world’s

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Intra-personnel intelligence (4) The journey towards the self

The journey from the Known to the Unknown has always been fascinating. The human mind always tries to unravel the mysteries of the Unknown. This effort is always associated with various types of feeling like fear, curiosity, anxiety, adventure and others. When it comes to the mysteries associated with the existence, relevance, objectives and the future of the human self, several approaches have emerged world over. The relation between the inner self and the exterior self has been viewed from different angles depending on the socio-, economic-, political- and cultural contexts.

In the Indian context, most of the Upanishads were exercises in this direction. They tried to find answers through meta-cognitive exercises. The research and analysis in this direction was a joint exercise of the teacher and the taught. This clearly indicates that most of the early exercises were deliverances from the Ivory Tower or the pedestal adored by the teacher but was exploratory in nature. Unfortunately, the spirit of such exploratory exercises has been marginalized over a period of time and the learning organizations have become transmitters of assimilated information.

The realization of the self was an introspective exercise from time immemorial. People perceived this differently, facilitated their understanding through their own unique understanding. Terms like Jeevatma, Paramatma; individual consciousness and pure consciousness (Universal Consciousness); and the like are not unfamiliar to use. However, in all such pursuits of understanding of the inner self the dynamics was from the concrete to the abstract; from matter to energy; from the comprehended to the incomprehensible.

One of the Upanishads tried to identify the process with the understanding of the five sheaths of existence, because people remained at different levels of existence. The five levels were called- the annamaya kosha, pranamaya kosha, manomaya kosha, vijnanamaya kosha, Anandamaya kosha – relating to the physical, vital, mental, intellectual, and the blissful. The process was transcendental and empowering. It led to the highest level of realization where everything in and around was manifestation of Bliss or Joy.

It is important to note that we presently engaged in an entirely materialistic world, rather consumerist – which has brought more pain and anxiety to the minds of many. Cases of diabetes,

blood pressure and heart ailments among the young are increasing substantially due to the stress borne out of consumerism.

More importantly we are becoming victims to a process of emotional consumerism and this has resulted in increased impulsivity and aggression in the young minds. It is in this context I feel that we need to engage our children to a process of mental empowerment by exposing them to higher realms of life. The process may vary depending on the country, religion, society and cultural differences. Nevertheless, an exposure to a process of inward journey at the formative years appears important.

Haunted by value conflicts, the students of today find variations between preaching and practices, variations between the code of conduct and methods of implementation, the force of the law and the deliverance of justice. An inward journey to the realization of the self will adequately help them to understand things in perspective, appreciate the variety and conflicts, at the same time giving them the wherewithal for facing life with conviction.

You would agree with me that enabling self-awareness is an important step in the growth process and people should be allowed to adopt such approaches which are contextual, flexible and suited to the local situations.

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Intra-personnel Intelligence (5) Taking responsibility for the self

Intra-personnel intelligence is the basic tool for taking responsibility for the self. If one doesn't understand the strength and the potential latent within, he or she wouldn't be in a position to take the responsibility for the growth and dynamics of one's own life. Taking responsibility for the self is very vital to make one's life happy and prosperous. In his book "The Seven Habits of Highly Efficient people" Stephen R. Covey defines the word 'responsibility' in his own way – "response- ability"; how one is able to offer responses to various stimuli and challenges one faces in life. It really refers to own the choices one makes, accept the consequences for one's actions as well as the ability to act according to one's consciousness.

Quite often we see people either with a bloated ego or people with a sense of self-contempt. For every action and its result, they tend to pass on the buck to the easiest available source, people or event. Or they tend to take over the praise or the glory for the victory of the people who work with them or in their professional neighbourhood. They fail to understand that such projections do not last long. They fail to understand that they are being evaluated by others and their own assumptions or projections of what they are, are not really the same as conceived by others. It is important that we need to train the younger generation right from the primary school level, to take responsibility for the choices they make, for the actions they do and the results they get. Says Dennis Waitely, in his book *"The Empires of the Mind"*: **"The truly successful leaders, those who have built financial empires or accomplished great deeds for society, are those who have taken personal responsibility to heart and to soul."**

Detailing how this could be done among the younger generation, Dennis urges the need for giving the Gen-X the "roots and the wings" He adds: **"Roots lie in core values and feelings of self-worth. Wings grow from acceptance of responsibility which enables our children to fly freely as independent adults. The loss of roots and wings too often leads to pursuit of "loot and things" and tragic results."**

I have found a large number of young children in the formative ages making statements of the following kind:

- I am looking ugly
- I wish I were fair

- I am too short
- I wish I had better eyes
- I think I should have better features
- I don't think people like my appearance
- I am uglier than my brother or sister.
- I wish my parents looked better
- I wish I had born in another race

The inability to accept the self in real terms causes a lot of mental stress among the young people and hence they resort to easy escape mechanisms to show their strengths or adopt faulty or proxy means of projecting one's identity. It is in this context I feel the teachers should take opportunities to enhance the self-worth of the children so that they 'learn to Be' and 'learn to Accept.'

It is important to make the students understand what truth is. Modification or falsification of truth may make truth look fashionable for a certain period of time but whenever they fall back to raw truth, they will get into moments of despair, failure and shame. Such frequent flights to virtual worlds and retreat might have a long-term psychological impact on the mind. Instead once the truth is accepted as the reality and credible, one would find no quarrels with life and should be able to manage their lives with ease.

In case of adolescents seeking a self-identity, they normally tend to move to a make believe situation by trying to imitate the identity of their projected heroes or heroines; they start realizing over a period of time that all this do not lead them anywhere and hence are back to square one fighting with their own self.

The exercises relating to the intra-personnel intelligence appear quite relevant in this context. We need to teach our children that everyone has a value and facilitate them to understand that value.

Remember the adage: **“You should look within for values and look beyond for the perspectives.”**

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Intra-personnel Intelligence (7)

Goal setting

Goal setting is an outcome of an intensive intra-personnel exercise. **Goals are like the Light houses that we construct for our journey in the sea of life.** Unless we are clear where we need to go, unless we set the direction of our movement right, unless we navigate properly in the direction of the goal, we will never be able to achieve them. Goals are the architectural designs we make for the inner visions of our existence. In a world, where most people tend to survive or exist, a goal facilitates us to live. It fires the energy from within, provides the required motivation for movement, facilitates planning and execution of our actions and enables the sustenance of our energy. Seneca observed:

“When a man does not know what harbour is making for, no wind is the right wind.”

In a highly competitive environment of today, one finds that the goals for the younger generation are set either by their parents or by the social needs and demands. Aspirations and interests are held secondary to the immediate successes and returns. People are evaluated by short term achievements rather than long term pursuits. The choices of pursuits in life are getting increasingly polarized depending upon their visibility and monetary returns. When vocations and skills are tempered to external considerations, one finds that it is purely a subscription to mediocrity than excellence. Consequently, you find people doing their job or than enjoying their work. When excellence is pursued people enjoy what they do, when profession is pursued you condition your designs to the external requirements, most often switching off your own thought processes and subordinating your mind and intellect to others needs and interests. It was Michelangelo, one who scaled high peaks of excellence, who said: **“Lord, grant that I may always desire more than I accomplish.”** We need to continuously reexamine whether we have that burning desire.

The school education scenario has just become a victim of this process and hence most students are conditioned to think for external goals rather than their own goals in life. Says Dennis Waitley **“Excellence is almost frowned upon. The right to become unequal by choice – to climb toward a pinnacle – is submerged in an insistence that all individuals are entitled to equal results.”** He adds **“Mediocrity’s only redeeming feature is regularity – consistency. It’s muddling through from birth to death with the least inconvenience, giving no highs, no lows, just medium –which rhymes with tedium.”**

In a school and a classroom environment, it is important to understand that every child is unique and has to pursue a field of his or her own interest, set a goal for their own selves. Teachers need to infuse in the young minds the thrill of making choice, the thrill of pursuing the unknown, the joy of enterprise, the ability to take calculated risks.

I quote a poem titled *“The epitaph of a dead man”*, which really fascinated me:

**There was a very cautious man
Who never laughed or cried
He never risked, he never lost
He never won, nor tried
And when one day, he passed away
His insurance was denied,
For since he never really lived
They claimed he never died.**

It is important that we teach our children to set goals for their life. It is important that we should empower them to move towards the goal with a sense of courage and conviction. It is important that we give the desired motivational inputs so that they don't feel defeated at any point in the pursuit of their goal. It is important that we should let them choose excellence than mediocrity. It is important that we should tell them that they should know the difference between existence, survival and living. It is important that we should help them to unravel the mysteries of their existence. It is important to understand the spirit and meaning of the following words of Helen Keller:

“The world is moved not only by the mighty shoves of the heroes but also by the aggregate tiny pushes of each honest worker”

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Note: While presenting the 100th issue of the second series, I sincerely thank and appreciate the members of this learning community who have rendered valuable suggestions, inputs from time to time, and have had given their time and patience to read the articles. These small steps will, I am sure, take us to empowerment, understanding and co-existence. We share through these columns, not merely words, but feelings, emotions and commitments to our future generations. Thank you all!



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Intra-personnel intelligence (8)

Managing the self

Intra-personnel intelligence, as seen in the earlier episodes, is an essential tool to manage the self. Various attributes of intra-personnel intelligence help us in shaping the mind, emotions and attitudes. Denis Waitley, in his book *“Empires of the Mind”* lists various things we can take charge of in our lives. I feel most of these things are borne out of our effective use of intra-personnel intelligence. The list is as follows:

- 1. You can control what you do with most of your free time during the day and the evening.**
- 2. You can control how much energy you exert and effort to you each task you undertake**
- 3. You can control your thoughts and imagination, channel what you think about.**
- 4. You can control your attitude**
- 5. You can control your tongue; you can choose to remain silent or choose to speak If you choose to speak you can choose the words and your tone of voice**
- 6. You can control who you choose as role models, and who you will seek out for monitoring counsel and inspirations. You can control who you spend your leisure time with – and to a great degree with whom you communicate**
- 7. You can control your communications, the things you absolutely promise yourself and others that you’ll do.**
- 8. You can control the causes to which you give your time and ideas.**
- 9. You can control your memberships.**
- 10. Fate is partly the hand you’re dealt. You can’t control that, but you can control how you play your cards**
- 11. You can control your concerns and worries- and whether you will choose to take action about them.**
- 12. You can control your response to difficult times and people.**

In a school situation, it is quite possible to train the students in some of these fundamentals. Apart from regular curricular inputs and Life skills education offers adequate opportunities to help the learners in acquiring some of these competencies. As such these are much more important than a mere quality performance in an examination. This kind of input will help them to organize themselves effectively and improve the quality of the self. It is important educate the learners on the message behind this wonderful Swedish proverb:

“God gives every bird his worm but does not throw it into the nest.”

Intra-personnel intelligence is an effective tool that helps each individual with the courage of conviction and to adherence to principles and values. Says Martin Luther King Jr. in his book *“Strength to Love”*, **“The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.”**

Personal benchmarking is critical to model one’s personality. In the present-day consumerist world, most of the younger generation tend to benchmark them against others than their own visions of themselves. Inter-personnel intelligence is a gateway to empower the learners in personal benchmarking

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Intra-personnel intelligence (9) The power of Reasoning

One of the major competencies under intra-personnel intelligence is the power of reasoning. It is important for every individual to learn the competencies of looking at any object, event, person or situation in an objective manner without a bias. Most often the way one looks at things is coloured by one's own perceptions, likes and dislikes. One tends to seek a meaning of his or her own in the above or would like to tilt the balance of the meaning to his or her own advantage. In this process the truth of the matter gets distorted. Sometimes these biased or unreasonable and coloured approaches lead to conflicts among situations and people. Hence it is important to train the students, right from the formative period of the life to examine and evaluate things in an unbiased manner. Says Mark Twain: **“We do not deal much with facts when we are contemplating ourselves.”**

Further it is equally important to see reason in what others do because the actions of others might have been planned or designed keeping in view their own perceptions, needs and conditions. Problems relating to the above would inevitably arise in heterogeneous, multi-cultural, multi-religious or multi-linguistic situations. In an increasingly globalized world, therefore, it appears important that the skills of reasoning, analysis, deduction and discrimination be imparted to the young learners. Schools would do well by imbuing in the student population a right attitude, an attitude to see things objectively, evaluate objectively and decide objectively. Even if for one reason or the other the students do not have this right attitude, it is quite possible to educate them continuously so that they are able to appreciate the need for objective reasoning in life. William Jones remarks **“The greatest discovery of my generation is that a human being can alter his life by altering his attitude.”** (Well, the Indian culture had always believed this as is evident from several of the strategies adopted in curriculum and pedagogy for several centuries)

To strengthen the above attitudes, it is vital to drive home the following points:

1. Justice and fair play are core values for a meaningful existence
2. One should set high standards for oneself before he or she expects them from others
3. Celebrate diversity in life. Learn to disagree and agree to disagree
4. Develop the qualities of listening. Unless one listens, one cannot take a judicious decision
5. Followers are created not by force or compulsion, but through effective role-modeling

I recollect a wonderful saying of R. Tagore “**Reason is all blade without a handle.**” It implies therefore all reasoning should be done in the context of human goodness rather than other factors. Emotionally fine-tuned reasons are most often the safest bet for implementation.

Sometimes the power of reasoning also calls for the courage of conviction on the part of the individual to stand up and say what is right. Confucius said: “**To know what is right and not to do it is the worst cowardice.**” When one reasons our something as wrong and still makes compromises to keep quiet can have a long term negative impact not only on the individual but on the entire system. Says Edmund Burke” **The only thing necessary for the triumph of evil is for good men to do nothing.**”

Teachers should therefore understand that empowering students to reason is not making them silent or to stand as mute witnesses, but also to stand up and voice their concerns when called for. This competency of the intra-personnel intelligence would help him as an effective life skill to face the realities of the future.

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Intra-personnel Intelligence (10) **Where are the diamonds?**

I am just reproducing a story which I read in the “Empires of the Mind” by Daniel Whitley. I am sure you might have read this story elsewhere. Nevertheless, it is worth reading and narrating to the young kids:

ALI HAFED’S ACRE OF DIAMONDS

Not far from the River Indus, there once lived a Persian farmer by the name of Ali Hafed, who owned a large farm with orchards, grain fields, and gardens. He was wealthy, contended man- contended because he was wealthy, wealthy because he was contended. One day he was visited by an ancient priest, a wise man from the east. The priest sat by the fire and told Ali Hafed how our world was made.

He said Almighty thrust a finger into the fog and slowly turned it round and round, increasing the speed until it gradually became a ball of fire. Then, he said, the ball of fire rolled through the universe, burning its way through other cosmic banks of fog and condensing the moisture until it fell in floods of rain upon its surface, which cooled and became a granite. That which cooled less quickly became silver – and even less quickly, gold. “And diamonds” said the ancient priest, “Diamonds are congealed drops of sunlight.” Declaring diamonds, the highest of God’s creations, the priest said that one stone the size of Ali Hafed’s thumb could purchase the whole country, If Ali Hafed had a mine of diamonds, he could place his children on the throne of countries throughout the world.

Ali Hafed went to bed that night a poor man- poor because he was discontented and discontented because he thought he was poor.” I want a diamond mine’ he repeated unto himself throughout his sleepless night.

He woke the priest early next morning” Will you tell me where I can find the diamonds?” he asked.

“Diamonds” said the priest “What do you want with diamonds?”

“I want to be immensely rich” replied Ali Hafed candidly.

“Then go along and find them, that’s all you must do.” Advised the priest.

“But I don’t know where to go.” Ali Hafed challenged.

“Well..” said the priest “if you look for a river that runs over white sands between high mountains, you will always find diamonds in those sands.”

Ali Hafed went to the window and looked out; his gaze fixed on the mountains that bordered his farm.” I believe you, I will go” he resolved.

He sold his farm and collected his money. Leaving his family in a neighbour’s care, he went off in search of diamonds, starting with the nearest mountains. Next he searched in Palestine, wandered around Europe and when he had lost all his money he stood in rags on the Bay of Barcelona, watching the waves roll in. Soon the penniless, hopelessly wretched man cast himself into the oncoming tide and sank beneath the water, never to rise again.

One day the old Arab, who had purchased the farm led his camel to the garden to drink. As the beast lapped the brook’s clear water, the Arab noticed a curious flash in the shallow stream ‘s white sands. Reaching unto the water, he withdrew the black pebble with an eye of light that reflected all the colours of the rainbow. He took the curious stone into the house, put it on a mantel, and returned to his chores.

Some days later he was visited by the ancient priest. As the priest saw the gleam of the mantel he rushed towards it. “A diamond here” he shouted “Has Ali Hafed returned?”

“No, he hasn’t, and neither is it a diamond” answered the Arab.

The priest swore it was diamond and both of them rushed towards the garden stream. They stirred and the white sands with their fingers – and lo, they got more diamonds, more beautiful and precious than the previous one. Thus, was the diamond mine of Golconda discovered! – the most magnificent in history, exceeding even the Kimberly silver mine.

Had Ali Hafed remained at home and dug his own garden instead of wandering aimlessly into a life of frustration, poverty and suicide in a strange land, he should have had acres of diamonds.

Friends, how many of us dig the mine of wealth embedded in our self? Aren’t most of us leading a life of frustration, fear and anxiety in search of unknown talents and wealth forecast elsewhere? Intra-personnel intelligence is the tool that helps you to dig the rich mines hidden in our own selves as the gift of the Almighty?

Can we empower our students to unravel the wealth hidden in them instead of chasing the mirage?

**Life's battles don't always go
To the stronger or faster man,
But soon or late the man who wins,
Is the man who thinks he can.**

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Naturalistic Intelligence (1) Your relationship with Nature

Naturalistic Intelligence, which is held in the position eight of the hierarchy of intelligences identified by Howard Gardner has been well debated both in the pedagogic and neuro-biological circles with regard to its identification as a separate status. Of late, people world over have acknowledged not only its positioning and relevance, but the importance of its training for human survival and existence. Naturalist Intelligence refers to “**sensing patterns in and making connections to elements in nature**”

What are the uses of application of this intelligence to the human intellectual world? Says Gardner’s commentators “*People possessing enhanced levels of this intelligence may also be very much interested in other species, or in the environment and the earth. Children possessing this type of intelligence may have a strong affinity to the outside world or to animals, and this interest often begins at an early age. They may enjoy subjects, shows and stories that deal with animals or natural phenomena. Or they may show unusual interest in subjects like biology, zoology, botany, geology, meteorology, paleontology, or astronomy. People possessing nature smarts are keenly aware of their surroundings and changes in their environment, even if these changes are at minute or subtle levels. Often this is due to their highly developed levels of sensory perception. Their heightened senses may help them notice similarities, differences and changes in their surroundings more rapidly than others. People with naturalistic intelligence may be able to categorize or catalogue things easily too. Frequently, they may notice things others might not be aware of. As children these people often like to collect, classify, or read about things from nature -- rocks, fossils, butterflies, feathers, shells, and the like*”.

How do we identify children who have a keen sense of Naturalist Intelligence? Some of the **characteristics** identified among the children are:

- Notices patterns and things from nature easily,
- Has keen senses and observes and remembers things from his/her environment and surroundings,
- Likes animals and likes to know and remember things about them,

- Really appreciates being outside and doing things like camping, hiking or climbing, even just like sitting quietly and noticing the subtle differences in the world of nature, or
- Makes keen observations about natural changes, interconnections and patterns,

Such children are called “**Nature Smart.**”

Leslie Owen Wilson, Professor from the university of Wisconsin, who has done an extensive study on the types of activities carried out by the children identifies the following as some predominant activities carried out by them:

- **Have keen sensory skills - sight, sound, smell, taste and touch.**
- **Readily use heightened sensory skills to notice and categorize things from the natural world.**
- **Like to be outside, or like outside activities like gardening, nature walks or field trips geared toward observing nature or natural phenomena.**
- **Notice patterns easily from their surroundings -- likes, differences, similarities, anomalies.**
- **Are interested and care about animals or plants.**
- **Notice things in the environment others often miss.**
- **Create, keep or have collections, scrapbooks, logs, or journals about natural objects -- these may include written observations, drawings, pictures and photographs or specimens.**
- **Are very interested, from an early age, in television shows, videos, books, or objects from or about nature, science or animals.**
- **Show heightened awareness and concern of the environment and/or for endangered species.**

As teachers, we do see many of these characteristics among the students in our classrooms. Let us learn more on how effectively we can put them into use,

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Naturalist Intelligence (2)

Why is it important?

“**The earth laughs in flowers**” said R. W. Emerson. From time immemorial human beings have assimilated a lot of knowledge and wisdom from their proximity to Nature than anything else. It is their observations of the birds that led to the invention of airplanes and their observation of the aquatic animals that led to the invention of ships and so on. You can enlist scores of inventions and discoveries to the knowledge the humankind got from the Nature. “**Nature be my teacher!**” said the wordsmith Wordsworth No wonder therefore, the early societies considered Earth as a God to be worshipped. World over, there is no society which has not admired the gift of Nature and showered unlimited praise to the Mother Earth. With the onset of the Industrial revolution, the human beings across the world started exploiting the nature to meet their immediate necessities and for the luxury of life least knowing the cost at which it is being done. Consumerism has paved way for destruction of the inner as well as external nature.

Said Mahatma Gandhi, “**Earth provides enough to satisfy every man’s need, but not every man’s greed.**” In a mindless exploitation of the nature, the humankind has landed itself to almost a point of no return. The issues of global warming, disturbances in weather cycles, the toxic gases being inhaled, and depletion of the forest wealth are obvious for any one to see and comment. Consequent to that the extinction of various species of living beings on land, water and air has set in motion a challenge to face. In short the biosphere is getting impacted and this would result in questioning our existence itself on this planet sooner than later. The words of Khahlil Gibran are worth pondering over: “**Trees are poems that earth writes upon the sky. We fell them down and turn them into paper, that we may record our emptiness.**”

To ensure that this beautiful earth is not further degraded, it is important that we promote the Naturalist intelligence among the learners from the formative stage itself. Many parents believe that the students need to take only select basic sciences and applied sciences which would rather fetch them an immediate and productive job. Students with a keen appreciation for the gifts of Nature could be helped to choose any of the following professions in their later life. The future holds promise for all the following subjects:

- **Conservationist**
- **Horticulturalist**
- **Farmer**
- **Animal Trainer**
- **Park Ranger**
- **Scientist**
- **Botanist**
- **Zookeeper**
- **Geologist**
- **Marine Biologist**
- **Ecologist**
- **Veterinarian**

With the advent of environmental tourism, environmental consciousness world over, space-shuttling and several other avocations, it is quite possible for the younger generation to launch on some wonderful professions which might give them a job they would love to do.

Some examples of people who displayed their extra-ordinary sense of Naturalist intelligence are:

- **Dr. Salim Ali**
- **John Muir**
- **Charles Darwin**
- **Vasco-de-Gama**
- **Columbus**
- **Wordsworth**
- **Shelly**

Listen to the words of Helen Keller: **“To me a lush carpet of Pine needles of spongy grass is more welcome than the most luxurious Persian rug.”**

Please ponder for a minute: Do you have students with Naturalist Intelligence in your classrooms? Have you ever noticed or appreciated them? Have you planned how you can help them to develop their attitudes to Nature?

I think we should not stop only with the formal textbooks at least in the formative classes but enrich our pedagogy through extended observations, interactions, reading and activities.

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Naturalist Intelligence (3) Appreciation of Nature

All of us live in close proximity with nature. Possibly, using the word “in proximity” may be incorrect. We all live with nature, as a part of nature, as an instrument of nature. The moment we start experiencing the nature within us and outside us, our outlook to life may undergo a dramatic change. This understanding that we are a part and instrument of nature might itself lead to unload a lot of stress that we carry in our lives. Nature is a great friend, a great accomplisher and a great healer! Over the centuries, we have tried not only to move away from nature but have started exploiting the same. **“Human society has yielded for seventy centuries to corrupted laws until it cannot understand the meaning of the eternal laws.”** Says Kahlil Gibran. Understanding the laws of nature is critical to human existence and peace on earth. In our present system of learning, we have distanced the soul of Nature, but teacher the younger ones the body of Nature. Hence most of the learners are deaf to the song of nature.

The appreciation of nature can manifest itself into a variety of forms. Once it finds its locus on the thought of the learners, it can reveal itself as poetry, music, dance, painting, sculpture and several unknown modes of communication between the individual and his or her universe. Unfortunately, in a structured curriculum, we may the learners imprisoned in other thoughts than letting them blossom with their own thoughts. Schools need to organize visits to parks, zoo, museums, paint galleries, fine art exhibitions, and music programs not as a ceremony of ticking of a visit in the chores of a school curriculum, but as tools of empowerment through which the students find their own expression. I have seen a large number of students who have an extraordinary capacity to envision, translate their thoughts into meaningful expressions, but are curtailed either by their parents or their schools in the hot chase for the scores. While I do not want to silence the pursuit of the parents and the schools, it will be a great sin to silence the call of the soul of the younger generation.

We need to sensitize the students to the worth of their existence and the joy of living. In a materialistic and consumerist environment, people are today lost in frantic races for the unknown. Visiting a beach, looking at a rainbow, watching the clouds, feeling the smell of the soil, smiling with a blossoming flower, dancing with a butterfly in a garden seem to be getting recorded in the history of literature. Can we give them back to the students? Can we bring the joy the planet earth offers us bountifully into their lives?

Listen, how Gibran looks at the planet “earth”

“In the plains I found your dream; upon the mountains, I found your pride; in the valley I witnessed your tranquility; in the rocks your resolution; in the cave your secrecy.”

Adds further:

“Your spring has awakened me and led me to your fields where your aromatic breath ascends like incense. I have seen the fruits of your summer labor. In the autumn, in you vineyards, I saw your blood flow as wine. Your winter carried me into your bed, where the snow attested your purity. In you spring, you are an aromatic essence; in your summer you are generous; in your autumn you are a source of plenty.”

Let us not think that teaching naturalist intelligence is a prerogative of some teachers of English poetry. Geography teachers have a world of opportunity to bring home the wonders and nuances of Nature. Science teachers can explain the organization of Nature in each and every step of the pedagogy. Mathematics teachers can explain the harmony and the heterogeneity through the numbers. (I was delighted during a visit to one of the schools where a child tried to explain to me the arithmetic progression and geometric progression with the help of a few plants and the number of leaves they had!) Social science teachers can take a voyage in the classroom to the ruins of last centuries to explain the search of man for a meaning through civilization. What we need is a willing teacher, a thinking teacher, a committed teacher and a passionate teacher! I know most of us are, but again lost in material and monetary pursuits relegating the joy of teaching to the backyards!

Can we move a little forward to introduce the realms of nature to our students in the classrooms – use discovery channel, geography channel and many other avenues?

There is a lot of sense in the following words of Aldo Leopold: **“We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.”**

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Naturalist Intelligence (4)

Some Random thoughts – for teachers

How can schools create an ambience for effective use of Naturalist Intelligence among the learners? I have some random thoughts on which you may like to ponder:

1. Language teachers can initiate a discussion, a debate, an essay/paragraph writing, poetry writing, or simple skits related to the following topics:

- a. Why do I admire a flower?
- b. Why does a stream inspire me?
- c. What do I feel when I walk alone in a valley?
- d. Reinventing the rainbows
- e. What would I talk if I had to speak to a dew drop?
- f. How would I face the winds if I were to sail in a sea?
- g. Making friends with trees
- h. If I were a bird...
- i. How do pet animals show their love to us?
- j. If I were in a cage, with birds watching me from outside...
- k. Singing for the plants
- l. A debate between the storm and the breeze
- m. The world from the eye of a storm

Well, the teachers have only to unlock the doors of imagination and let the children do the same. Naturalist intelligence goes well with imagination, fantasy and intuition. It bridges the inner self with the exterior self

2. A mathematics teacher can think of the following exercises;

- a. Shapes of leaves – an analysis and appreciation of natural order
- b. The homogeneity and heterogeneity of nature – an analysis
- c. A comparative study on the heights of hills – drawing different types of graphs
- d. The changing speed of water in the course of its route – a mathematical perspective
- e. A study on the volume of the pollutant gases in different studies – changing projections

Many problems from classes III and upwards can be related to the bounty of nature and concepts of mathematics can be related and linked to the phenomenon of nature. I wonder how in Japan people even monitor the direction of the branches of a tree by scaffolding them and also through support structures. One wonders whether Bonsai and other human endeavours of expression of nature in their own fantasy is a demonstration of the Naturalist intelligence. Designs, patterns and structures can be used to learn concepts of mathematics. This would simultaneously create sensitivity to nature and an attitude of mind for preserving nature

3. The science teachers have a world of opportunities to promote Naturalistic Intelligence among the learners.

Some useful topics they may introduce at appropriate classes:

- a. Order and disorder in nature – a watch
- b. Harmony between elements – water, air and earth
- c. Natural disasters – why and how of it?
- d. Preserving nature’s heritage – means and methods
- e. Light – on rocks, on water, on air; A study and appreciation
- f. How do animals (on air, water and land) cope with seasons?
- g. Depleting forests; The challenges ahead
- h. The panorama of the universe – an endless experience

Each branch of Science be it physics, chemistry, biology, geography and the like have a direct link with the nature and the habitat. Science teachers can not only create sensitivity towards Nature but create an affinity and admiration to it through organized knowledge and experiential learning. Teachers of Arts need to move much beyond the black boards to create an appreciation of nature among the learners. Why do we look at historical monuments, forts and other structures only from the point of view of history or engineering? Can’t we empower a different perception through which they can be evaluated in the context of their positioning and other human efforts to interpret nature? Don’t we have a large number of constructs which yield a meaning in reference to its relation with Nature – the light, the heat, the air, the water and what not. This would be possible when we move beyond text books and examinations at least in the formative classes?

All subjects of the school curriculum can significantly contribute towards this direction. Let us remember that developing naturalistic intelligence is not mere supporting environmental education; it is much beyond that. It is all about developing an attitude towards nature, an attitude towards one’s own living world, a recognition of the god’s gift to human kind and a communication to all that is moving and still around us– to convey a message that “ I am here” as a part of you. The more you love nature, the more you unravel it, the more you understand it and the more you breathe with it.

**“Nature has its own moods of joy and woe,
It only waits and watches –how lonely we come and go.”**

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Naturalist Intelligence (5)

Some experiments in schools abroad

Most often schools do feel that they have no adequate time to involve themselves in pursuits other than academic exercises that relate to examinations. Efforts have, however been made across the world to take the interests of students beyond the four walls of the school. The following are some information I collected from the article of Dee Dickenson on “Technology in enhancing Naturalist Intelligence.” May be that we can draw a clue from the above, how we can also do similar experiments in collaboration with local organizations:

1. At Clear View Charter School in Chula Vista, California, fourth and fifth grade students participate in on-line sessions with the Electron Microscope Facility at San Diego State University. Students who have been collecting, reading about, classifying and studying bugs can see their tiny subjects in great detail, ask questions, and discuss their observations with an entomologist at the university. You may see this class in action, as well as other examples of ways to activate learning through technology on the Learn and Live videotape produced by the George Lucas Educational Foundation
2. In New Hampshire students in grades 2 through 8 participate in three unusual science projects called Batnet, Birdnet, and Treenet. The projects were devised by a group of teachers under the auspices of Project RISE, funded by the National Science Foundation Teacher Enhancement Grant. Students count bats that fly by within a certain amount of time, record their count, air temperature and estimated wind speed, then report their findings on an electronic network that links students in the southeastern part of the state. Other students make records of bird migration, and still others measure the diameter of trees in order to help determine the age of New Hampshire's forests. All of these projects combine the use of technology and real-life experiences in ways that not only vitalize learning but also contribute to the adult knowledge base of the environment

Some partnership programs across the world (involving use of technology in promoting naturalistic intelligence):

- **The National Geographic Online** at <http://www.nationalgeographic.com> allows students to go on expeditions with famed geographic explorers and photographers.
- **Odyssey In Egypt: the Interactive Archaeological Dig** takes students in grades 6-8 to the ruins of a Coptic Monastery to work "virtually" alongside archaeologists (<http://www.scriptorium.org/odyssey>)

- **"Class Afloat,"** a virtual cruise for students in grades 3--9, follows the adventures of a crew of students aboard the tall ship Concordia as they circumnavigate the globe (<http://www.teachtsp.com>)
- **Microsoft's Mungo Park,** an online adventure magazine, offers chat sessions with expedition parties who also report their experiences via the Internet, relying on satellite communications systems, laptop computers, and digital cameras (<http://mungopark.msn.com>)

Here is a wonderful method by which students across US were involved in exploration of Nature: (as quoted by **Dee Dickenson** in his article **Technology that enhances Naturalist intelligence**)

Often it is not possible for students to actually explore some sites such as the depths of the Mediterranean Ocean, the cones of active volcanoes, the Galapagos Islands, or Iceland. Through the JASON Project, students all over the United States can actually interact with explorers at such sites. Founded by Dr. Robert Ballard, who discovered the wreckage of the Titanic and who remains an active participant in the project, the project brings real excitement to science classes. Using technology, students participate in an annual scientific expedition over a two-week period tied to a yearlong curriculum. Each year, about 30 students and 6 teachers are chosen by application to accompany the JASON scientists at the expedition site and serve as peer role models during the live broadcasts and online. At the primary interactive sites, (PINS) students can access a network of museums, educational institutions, research organizations where students communicate via satellite links with scientists, operate robots and scientific equipment via live remote control, as well as see and participate in live, up-to-the minute coverage of expedition activities. Through the last eight expeditions, more than 2 million students at the PINS sites have been part of this program, and countless others are finding a "virtual window on the world" through a Web site using emerging Web technologies, (<http://www.jasonproject.org>)

Keep Learning!

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Existential Intelligence

From time immemorial the human mind has been haunted with questions relating to their own existence and relevance to the physical world. Quite often these questions extended beyond the physical world and sought a meaning to the relationship with the proximate and the distant, the concrete and the abstract, the known and the unknown. A few questions he or she posed to the self were:

- What is the meaning of my life?
- Do I exist, survive or live? What is the difference between them?
- What is the objective of my living?
- What is my relationship with other human beings?
- Why do I need institutions life –family, society, state and religion?
- Do I live for the self or the institutions?
- Why do I need a God?
- Does God exist or is it my own making?
- How do I manifest the God I look for?
- What is death?
- What happens to me after death?
- Is that a supernatural world and how do I cognize that?

Questions of the such kind ransacked the nooks and corners of his active mind and the human mind has tried to introspect, observe, meditate, analyze, hypothesize and conceptualize the thoughts that flash from time to time. Howard Gardner, after careful study observed that there were some people who had a unique and keen interest in such types of knowledge pursuits and that they are thought patterns, their verbal communications, their living styles and their relationship with the external systems displayed an entirely different type of intelligence resulting in a different spectrum of activities. He ventured to call the same as “**Existential Intelligence**”. He further argued that these questions did not necessarily have a spiritual context but structured only around an intellectual climate.

Gardner defined persons with Existential Intelligence as **“Individuals who exhibit the proclivity to pose (and ponder) questions about life, death, and ultimate realities”**. He further clarified that these persons had some unique questions which storm their minds such as:

- **What the world was like before they were born...**
- **What life might be like on another planet...**
- **Where their pets go after they have passed on...**
- **Whether or not animals can understand each other...**

While some of the critics of Gardner believed that **“ this will open a can of worms best left out of the arena of education”** others believe that **“ It is important to remember that part of the power of Gardner's work depends upon careful examination of the available data and scientific evidence”**

Many great scientists and philosophers like Newton, Confucius, Aristotle, Socrates, Einstein, Plato, Rabindranath Tagore, and Swami Vivekananda possessed this intelligence to a great degree.

The question arises – how does it relate to a child studying in a classroom? Where do such thoughts take him? Is he or she mature enough to understand the context and the substance of these questions? Educationists who have debated intensely on the relevance of this intelligence to the school systems have observed this as **“the intelligence of understanding in a larger context. It can include aesthetics, philosophy, and religion and emphasizes the classical values of beauty, truth and goodness. The existential intelligence allows students to see their place in the big picture, be it in the classroom, the community, the world or the universe. Students with a strong existential intelligence have the ability to summarize and synthesize ideas from across a broad unit of study.”**

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Existential Intelligence (2)

Where does it take us?

I recall the mythological story of **Nachiketa**, who was a small boy and the son of a great king Vajashravas. The young boy observed the father doing a great yagna (ritual) in order to seek the blessing of the Almighty so that he may be endowed with the strength, valour and riches to rule the world. As a part of the ritual, he offers gifts to the poor. The young son observes his father donating things which are of no value to the people who receive them – like barren cows who don't yield milk and other insignificant things. Pained by his father's attitude, he asks his father "To who are going to give me away?" The arrogant father ignores the question twice, but on the third occasion he says, "I am giving you away to Yama – the Lord of Death." The obedient boy packs up in spite of the repentance of his father and reaches the doors of Lord Yama and waits for three days and three nights to seek an appointment.

Pleased by the sincerity and devotion of the young boy, Yama offers him three boons. The young Nachiketa puts in three questions to him, one of which being – What is the meaning of death? What happens to the body after death? What is the Eternal Truth?" The discourse between Nachiketa and the Lord of Death continues – as told in the "Kathopanishad"

The objective of my illustrating the story is to bring home the fact that questions of the above nature do haunt the young minds. Right from the time of adolescence they start questioning the nature, institutions, rituals, heritage and customs, and seek to obtain better and larger meanings. In many cases, they try to contextualize the explanations they receive in their own contexts leading to difference in perceptions. The individual perceptions again lead to "questions" for which they need answers.

In the modern context, the life of **Ramana Maharishi** is a case in the point. As young Venkataraman, the boy was seized with many intricate questions like "Who am I?"; "Is this name to the body or something else within?" The introspections and the meditations led him to discover "a meaning" to his own existence.

Swami Vivekananda is another glorious example. As young Narendra, he sought an understanding of the role of God in religion and found the greatest service to God lies in the service to humanity.

I would insist that we should not take the spiritual or the religious contexts of the above narrations because there are many such people in all religions and world over but see how as young learners all the above saw new meanings to their lives. In today's totally consumerist environment, inputs of existential intelligence appears important – so that we can take the younger generations **'to think' beyond the visible and the material – “to understand and appreciate” the physical nature in the context of the human nature – “to unravel” the strength of their inner self and raise a living beyond the needs of the physical body and survival needs – “to seek, assimilate and store wealth” abundant in the universe (rather than money).**

Life skills education yields itself enormous opportunities in this direction – to relate the individual self with the social self and the universal self. It empowers each learner to contemplate on the self and facilitate the process of evolution to a better self. In a mad world that is haunted by the speed of consumption from material to emotions, the younger generations seems to have lost “the present” to “a future” – a future that does not necessarily hold a promise. Stephen Leacock says **“How strange it is! The child says, “When I am a big boy” The big boy says, “When I grow up”. And growing up, he says” when I get married”. Then, when retirement comes, he looks back for the landscape traversed; a cold wind seems to sweep over it, somehow he has missed it all, and it is gone. Life, we learn too late, is in the living, the tissue of every day and hour.”** Please note that existential intelligence does not restrain itself to mere questions relating to the abstract and the invisible but calls for effective use of the known in relation to the unknown.

It is important that we should train the children to hear to their inner voice – the conscience – that raises several questions about what you do, how you live, how you relate and after all what is the final objective? Let us not think they make our heads heavy, but possibly the answers make the head lighter. The following French proverb makes a lot of sense: **“there is no soft pillow like a clear conscience.”**

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Existential Intelligence (3)

Why existential intelligence?

One of the tragedies of modern education is its limiting value. It imposes ideas, thoughts, facts and information inhibiting the natural curiosity of the young learner to wonder, to ponder, to imagine, to fantasize and to express. It enslaves the human mind and spirit preventing them to question and search. On the contrary, the entire educational edifice of the past focused on promoting the human cognition into unknown vistas of nature. Sometimes one wonders whether we are yielding ourselves to a culture of imitation, falsehood and untruth to seek some immediate pleasures as against the long-term happiness. Again I would like to take you back to the story of Nachiketha, where Lord of Death explains to him – the two ways of living – one “Preyas” (the path of likes and pleasures) and “Shreyas” – (the path of the right and the good) . In a consumerist environment, we possibly yield to the former than the latter. An individual is rated by “success” rather than “Performance and Excellence”. Says Khalil Gibran in his writing on “Yesterday and Today” – **“Today I am a slave to fickle wealth, society’s rules, the city’s customs, and purchased friends, pleasing the people by conforming to the strange and narrow laws of man. I was born to be free and enjoy the bounty of life, but I find myself like a beast of burden so heavily laden with gold that the back is breaking.”** Timely interventions of thoughts related to Existential Intelligence would awaken the young minds to the righteous and the eternal rather than the pleasant and the immediate.

It is important to initiate among the young discussions and debates on the Trinity – Truth, Beauty and the eternal. Most often the inability of a person to speak the Truth though he warrants it, or the practice of an individual to speak the untrue though he has every opportunity of speaking the Truth, profiles the conflict in the mind and spirit of the person. One needs to muster enough courage to stand up and speak when called for. In his book, *“The Speed of Trust”* – Stephen M.R. Covey observes: **“Ask Yourself: What keeps me from talking straight? Is it the fear of consequences? Fear of pain? Fear of being wrong? Fear of hurting others’ feelings? Is it a desire for popularity? The lack of courage? The challenge of living or working in an environment where people don’t talk straight? Identify the dividends of being honest and straight forward and the cost when you’re not.”**

It is important to empower the learners to think meditatively, to introspect on what are their objectives in life, in which direction they would like to move and what for? It is important to make them understand that there are many things in life better than the physical needs and they should try to relate themselves to them, acquaint them, use them, enjoy them and let the wings of

happiness open. Says James Thurber “**All men should strive to learn before they die, what they are running from, and to, and why?**”

An awakening to the existential intelligence may inspire the minds and hearts of the young to express themselves explicitly and truthfully – in their hobbies, in their vocations, in their undertakings and in their professions. They may turn out to be a painter, a sculptor, a psychologist, a philosopher, an artist, a poet, a nature explorer and what not. They will enjoy what they do, live every moment of their life. Poets like Khalil Gibran express the beauty of their existence even with their conversation with death. Listen to the fine words of the great philosopher, poet:

**Cover me with soft earth, and let each handful be mixed
With seeds of Jasmine, lilies and myrtle; and when they
Grow above me and thrive on my body’s element they will
Breathe the fragrance of my heart into space;
And reveal even to the sun the secrets of my peace;
And sail with the breeze and comfort the wayfarer.**

What a noble thought!

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Existential Intelligence (4) The search for Truth

The existentialists have always sought to question the nature of Truth and Beauty. They saw the undercurrent of both in all that is around- both in the visible and the comprehended. This pursuit manifested in different forms both in the realms of philosophy as well as science. They saw a meaning – the core of Truth and Beauty – both in the organized world and the unorganized. They tried to interpret the order in the disorder and the disorder in the order. In short, what surfaced in all their pursuits is a vigorous effort of their intellect to critically evaluate their role in the context of all that exists around. This is the uniqueness of every human being. This is what distinguishes each individual from another. In the absence of the intellect that sees a different meaning in everything, we would all possibly see the same meaning and have the same feeling, possibly mirroring each others mind. **We, as educators, need to understand this phenomenon that the thought patterns of every child is unique and the creative potential of each learner centers on this ability to perceive differently. It is important to promote diversity of approaches and lateral thinking competencies.** Unfortunately, we tend to standardize everybody on the same pedestal and let them hover around the established lines of thinking. I don't mean that we should encourage them to strike a discordant note to all that has been established. But their ability to critically evaluate the concepts on the pedestal of Truth is important.

Describing the uniqueness of the individual Gibran says: **“Your life, my brother, is a solitary habitation separated from other men’s dwellings. It is a house into whose interior no neighbour’s gaze can penetrate. If it were plunged into darkness, your neighbour’s lamp could not illumine it. If it were emptied of provisions, the stores of your neighbours could not fill it. If it stood in a desert, you could not move into other man’s gardens tilled and planted by other hands.Were it not for this loneliness and solitude, I would come to believe on hearing your voice that it was my voice speaking; or seeing your face, that it was myself looking into a mirror.”**

Quite contrary to the above thinking, we want the learners to take shelter on the light from the lamps already lit. In this process, we generate a large number of followers, rather than leaders with independent thinking. That is possibly the reason that we don't get leaders who have courage of conviction, who stand on the pedestal of Truth unequivocally, who do not succumb to temptations, falsehood and virtual lifestyles. In his book **“The New Leaders”** Daniel Goleman writes – **“How do effective leaders discover the Truth? A study of almost 400 executives**

showed that, for one thing, they use their self-awareness and empathy, both to monitor their own actions and to watch how others react to them. They are open to critiques, whether of their ideas or their leadership. They actively seek out negative feedback, valuing the voice of a devil’s advocate. By contrast, less effective leaders most often seek comforting feedback.”

It is important to develop in the learners the ability to seek the Truth, in its original form, without any distortion. Truth may be bitter sometimes but is important to digest it as a medicine. For a holistic growth in life, it is important not only to pursue success, but understand that Truth has to be the means of success and any pathway that is not designed on the foundations of Truth, does not reflect success in its real terms.

Existentialists did seek a meaning in what they did. Life to them was an exercise in growing with Nature seeking the Truth behind her dynamics and visualizing the Beauty inherent in each of her actions.

The following words of St. Francis of Assisi have to be inculcated in the young minds:

**“Lord, make me a channel of Thy Peace,
That where there is hatred I may bring Love,
That where there is wrong I may bring the spirit of forgiveness
That where there is discord I may bring truth;
That where there is doubt I may bring faith;
That where there is despair I may bring hope;
And where there are shadows I may bring Thy light;
That where there is sadness I may bring Joy;
Lord grant that I may seek rather to comfort than be comforted,
To understand than be understood,
To love than to be loved;
For it is in giving that one receives,
It is by self-forgetting that one finds,
It is by forgiving that one is forgiven,
It is by dying that one awakens to eternal life.”**

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Existential Intelligence (5) Sensing the Beauty

Here is a wonderful piece of writing from Helen Keller who was blind. It speaks volumes of the faith and the guts of the person: **“Use your eyes as if tomorrow you would be stricken blind. And the same method can be applied to other senses. Hear the music of voices, the song of a bird, the mighty strains of an orchestra, as if you would be stricken deaf tomorrow. Touch the object you want to touch as if tomorrow your tactile sense would fail. Smell the perfume of flowers, taste with relish each morsel, as if tomorrow you could never smell and taste again.”**

The beauty of life lies not only in the visual appreciation of the objects but in harmonizing their experience with all the possible senses. It is important to bring home the fact that there is beauty in each and everything around us. Color, appearance, design, format, dexterity and all such related things are only perceptive manifestations of an inherent matter and the moment we see the life, the purpose, the truth and the goodness of the matter we will be able to see the latent beauty – beyond the penetrative domains of the eyes. The existential intelligence is just a gateway to this realization of understanding the aesthetics behind all that exists in this cosmos.

This intense appreciation is possible only if the individual falls in love with the creation – the manifestations of the creation – as if each of these has been made exclusively for oneself and thus they develop a sense of possessiveness for the existence. One could realize easily that when one radiates love for things beyond the self – including the non-material, one would experience the reciprocity of that love from the external. Says Victor Hugo: **“The Supreme happiness of life is the conviction that one is loved; loved for oneself, or better yet, loved despite oneself.”**

On the contrary, the present system of education offers no scope for the appreciation of beauty. Right from the formative stage, goals and targets being set – the learners are driven as the racehorses to score a jackpot! They fail to see the confluence of time and space, the rhythm in movement, the melody in actions, the fragrance from the wind and the feel of the soil. They miss the emotions in the paintings, the chorus in the landscape, the cry of the soul in the song – and all such things for the tamed repetition of information on paper to be weighed in marks!

It is high time that we rehabilitate education! I have always been outwitted by people who want me to be pragmatic, to be realistic of the competitiveness in the society, to be sensitive more to the economic needs of the modern times and for seeking a designer-made career. While I do appreciate their concerns, it is important to understand the cost at which such success stories are made – the cost of the beauty of life. Let's give the children their childhood – the time to gaze, the time to wonder, the time to question, the time to disagree, the time to smile, the time to breathe deep, the time to experience and the time to enjoy the existence!

Existential intelligence challenges the concept of mere survival. It seeks clarifications – why things have been made and what is our relationship to all that exists. This is what possibly leads them to seek the Truth, to understand the Beauty and to follow the goodness.

Can we provide opportunities in the formative classes to the young learners to open their minds to these questions? Can we question ourselves – Why we teach “Twinkle, twinkle little star” or “Mary had a little lamb?” Can we take them to a mountainside valley and let them see the curves on her body? Can we take them to a stream nearby and let them listen to the music of the droplets of flowing water? Can we ask them to sit under a group of trees in the morning or evening and hear to the rustling of the leaves or to listen to the chirping of the birds returning home? Can we ask them to paint what they have in their fertile brain and send a message to a loved one? Can we ask them to clap their hands and jump in Joy? Can we sit by the side of a sobbing child repenting a mistake and comfort?

Friends, haven't we all experienced at least a few of these things in our life? Are we extending these experiences to the Gen-X? Let's take them to life – far from the sound of the hammer and the chisel hitting the walls of the nearby classroom forcing the teacher to raise her voice in discomfort!. Remember the words of R.W. Emerson **“The mind celebrates a little triumph every time it formulates a thought.”**

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Existential Intelligence (6)

The concept of goodness

In the trinity of Satyam, Shivam, Sunadaram, (Truth, Beauty and Goodness), there have been significant efforts to perceive, conceptualize, interpret, analyze and debate on the concepts of Truth and Beauty rather than Goodness. If one carefully analyzes the above, it would clearly surface that the core of the idea of Truth and Beauty was the Goodness itself. One could not think of Truth or Beauty without acknowledging the underlying Goodness. You may recall the famous words of the great English poet:

**“Truth is Beauty, Beauty is Truth
That is all ye to know, ye to know on earth.”**

The appreciation and adherence to goodness is a great value. It is an expression of the simplicity of existence and the most non-violent approach to living. Goodness in thought and goodness in action enables a positive approach to living and brings an intense harmony in existence with the surrounding and nature, both internal and external.

In the instant world and environment which is increasing consumerist, we tend to seek the utilitarian value of things rather than their goodness. This has extended beyond materials even to men and evaluate our relationship with people more on their utility than their goodness to us. Says, Mother Teresa: **“Be faithful in small things because it is in them that your strength lies.”** It is important that we should train the young minds to perceive and follow simple acts of goodness. The mind has to be oriented in seeking goodness of the matter, the actions and the people. Unless it is oriented towards seeking goodness or seeing goodness, it will always look for what it needs or what is useful to that. The pursuits of goodness take one beyond the realms of the self and see the universe in its existential truth and beauty.

In a school environment, we tend to teach children many things in life which can shape their future for a secured life, but in the process compromise the means through which the achievements are made. The focus on the means of achievement has been marginalized largely in a mad chase for results and success. People toil for days chasing a mirage, but finally land up with a question “what for?” In his book on **“Being a Real person”**, the author H.E. Fosdick writes: **“In all strong characters, when one listens behind the scenes one hears the echoes of strife and contention. Nevertheless, far from being at loose ends within themselves, such**

persons have organized their lives around some supreme values and achieved a powerful concentration of purpose and drive.” In most cases, that supreme value has been the pursuit of social good and the universal good.

The approach and design for pursuit of goodness has to be articulated from the formative years. While using the word “articulated” I am a little cautious, because the basic human nature itself is pursuit of goodness. But in the hot chase for a variety of material pursuits, the human mind yields itself to conflicts with situations, conflicts with people and conflict with the self” thereby relegating the basic goodness to an underworld. The role of the teachers and the schools would be to enable the young minds to regain their original strength in terms of their goodness and build a life of Truth and Beauty based on this infrastructure.

Can we take some time in our Life skills education classrooms to bring home to the students the unity in the trinity of Truth, Beauty and Goodness?

**” The sea has its ebb and flow,
The moon has its fullness and
Crescents, and the Ages have
Their winter and summer, and all
Things vary like the shadow of
An unborn God moving between
Earth and sun, but Truth cannot
Be changed, nor will it pass away;
Why, then, do you Endeavour to
Disfigure its countenance?**

-----Khalil Gibran

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Social intelligence – (1)

The intelligence that empowers our social sensitivities

Having discussed the nine different types of intelligences that operate in the human brain as detailed by Howard Gardner and their implication in the learning process and on the requisites of appropriate pedagogy in the classrooms, one would find how the process of learning gets more and more specific and focused. Possibly many of the issues related to “slow learning” can be effectively handled by using the relevant and appropriate pedagogy which would attract the learners and their interests, motivate them, sustain their motivation, and take them closer towards various domains and disciplines of learning. It is important to note that the learning has to fall much closer to the attitudes and aptitudes of the learner.

Daniel Goleman has taken forward the research on the presence and use of different intelligences and has defined and advocated the understanding and effective use of social intelligence. One really wonders whether there is a separate form of intelligence which empowers our social activities in an effective and meaningful manner or is it just an extension of inter-personnel intelligence or a synthesis of inter-personnel and intra-personnel intelligences? Explains Daniel Goleman **“Neuroscience has discovered that our brain’s very design makes it sociable, inexorably drawn into an intimate brain-to-brain link up whenever we engage with another person. That neural bridge lets us affect the brain – and so the body – of everyone we interact with just as they do us.”** He further adds: **“Even our most routine encounters act as regulators in the brain priming our emotions, some desirable others not. The most strongly connected we are with someone emotionally, the greater the mutual force.”**

This takes us to an understanding that our relationships and social interaction are not merely casual but depend on the neural chemistry of our brain and those with whom we interact. The emotional dance that articulates in the interactive sessions of our dialogue is not simply external but is consequent to much stronger brain interactions. **“In a less urgent mode, our brain’s social circuits navigate us through every encounter, whether in the classroom, the bedroom or on the sales floor. These circuits are at play when lovers meet eyes and kiss for the first time or when tears held back are sensed, nonetheless. They account for the glow of a talk with a friend when we feel nourished.”**

This understanding takes us to newer vistas of defining the growth pattern of the young children in the classroom because they are essentially social beings and need to understand how they have to articulate their social patterns for an effective and successful living. In an increasingly globalized world, social interactions are quite critical for a healthy living. No wonder, the Delor's report "Learning- The Treasure within" emphasizes adequately on "learning to live together" as an essential pillar of learning.

In the present-day environment, the young kids are attracted to the television and the I-pods. While the importance of both as instruments of socialization cannot be underplayed, addiction to the above also has an adverse impact on the psychological development of the younger generation.

Here is a case study:

“A kindergarten teacher in Texas asks a six-year old girl to put her toys away, and she launches into full tantrum mode, screaming and knocking over her chair, then crawling under the teacher’s desk and kicking so hard the drawers spill out. Her outburst marks an epidemic of such incidents of wildness among the kindergarteners, all documented in a single school district in Fort Worth, Texas. The blow-ups occurred not just among the poorer students but among better-off ones as well. Some explain the spike in the violence among the very young are due to economic stress that makes parents work longer, so that children append hours after school in day care or alone and parents come home with a hair trigger for exasperation. Others point to data showing that even as toddlers, 40 percent of American two-year olds watch TV for at least three hours a day – hours they are not interacting with people who can help them learn to get along better. The more TV they watch, the more unruly they are by school age.”

Let us examine in the next few issues the predicaments in effective socialization.

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Social Intelligence (2)

The significance of social intelligence

A lot of research has been done and is being carried out in the field of ‘social neuro-science.’ The way we live our lives is important, because our lifestyles, our social thought patterns not only affect our lives, but it does impact the life of others also. Comments Daniel Goleman, **“The social responsiveness of the brain demands that we be wise, that we realize how not just our own moods but our very biology is being driven and molded by other people in our lives – and in turn, it demands that we take stock of how we affect other peoples emotions and biology. Indeed, we can take the measure of a relationship in terms of a person’s impact on us and ours on others.”**

All these biological interactions are possible only if our brain is actively involved in the process of understanding, establishing and nurturing those relationships. How does this happen? Is there a special or specific type of neural activity happening inside our brain which characterizes such relationships or emotional dances?

Says Goleman **“Our social interactions even play a role in reshaping our brain through “neuroplasticity”, which means, that repeated experiences sculpt the shape, size and the number of neurons, and their synaptic connections. By repeatedly driving our brain into a given register, our key relationships can gradually mold certain neural circuitry. In effect, being chronically hurt and angered, or being emotionally nourished, by someone we spend time with daily over the course of years can refresh our brain.”**

The case for empowered social intelligence is quite significant in the instant society wherein the consumerist tendencies have outwitted the need and relevance of social institutions and has driven the human mind towards more self-centric and isolated ways of living. The cracking down of the joint family system, the increasing level of intolerance among the people, the rat race for achievement oriented life systems, the cutting-edge competitions for survival, the increasing social, religious, racist animosities call for establishing a good and firm foundations in the school systems and formative years of development such life skills which will enable them counter the fissiparous and parochial tendencies and help in co-existence and co-operation.

Here is an interesting finding:

“The one-person shell created by the headphones intensifies social insulation. Even where the wearer has a one-on-one, face-to-face encounter, the sealed ears offer a ready excuse to treat the other person as an object, something to navigate around rather than someone to acknowledge or, at the very least, notice. While life as a pedestrian offers the chance to greet someone approaching or spend a few minutes chatting with a friend, the I-pod wearer can readily ignore anyone, looking right through them in a universal snub.

To be sure, the I-pod wearer’s perspective, he is relating to someone- the singer, the band, or the orchestra plugged into the ears. His heart beats as one with theirs. But these virtual others have nothing whatever to do with the people who are just a foot or two away – to whose existence the rapt listener has become largely indifferent.”

Some critical issues with the students at the school level today are:

- They are more intolerant (They seek instant responses)
- They are more aggressive (They show more mental violence)
- They are least connected (At the personal level)
- They are low in compassion (More self-centric)
- They exhibit no symptoms of empathy (Emotional blandness)
- They look for utility value in relationships (Absence of unconditional love)
- The emotional balance appears often tilted.
- They look for short term gains rather than long-term gains.

There are a few more things they possess as gifts modern consumerist lifestyles. In order to help them to navigate their lives in a social context with conviction and comfort, the inputs of social intelligence in the formal and non-formal learning appears relevant.

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Social Intelligence (3)

The mirror neurons and their role

Normally, the first few seconds of our interaction with anybody else determines the course of further interactions. The first few minutes decide whether we are able to establish a rapport; whether we are radiating at meaningful wavelengths, whether there is compatibility between the people involved. Sometimes even looking at a person we start assuming that he or she is not the right person to interact. Why does this happen? Is it a mere impression or do we generate some neuro-biological symptoms that prompt us on the course of such interactions?

In his book *“Social intelligence”* Daniel Goleman observes **“As people loop together, their brains send and receive an ongoing stream of signals that allow them to create a tacit harmony and, if the flow goes the right way, amplify their resonance. Looping lets feelings, thoughts and actions synchronize. We send and receive internal states for better or for worse – whether laughter and tenderness or tension and rancor.”** Such synchronizations are normal, casual and happen most often beyond the level of awareness. Very often, we are not even aware of such synchronizations manifesting between people and may be over a period of time, one is able to feel and acknowledge the same. **“Synchrony works best when it is spontaneous, not constructed from ulterior motives such as ingratiation or any other conscious intention.”**

During one of their routine experiments on the brains of the monkeys, neuroscientist stumbled upon an amazing observation. They noted to their astonishment that when a monkey or one of the experimenters made a given movement, a distinct set of neurons in their brain got activated. For example, when the monkey observed another monkey taking an ice cream cone near its mouth, this set of neurons in the observant monkey’s brain got activated. This led to the identification of “Mirror neurons” in the brain. Later the same was identified even in the human brains.

The Neuroscientists believe that **“Mirror neurons make emotions contagious, letting the feeling we witness flow through us, helping us get in synchrony and follow what’s going on. We ‘feel’ the other in ourselves. - sensing their emotions, their movements, their sensations as they act inside us.”**

For example, we tend to laugh when someone nearby laughs; shed tears when someone near is shedding tears; we tend to yawn when someone nearby yawns; we tend to raise our hands and eyebrows when someone interacting with us does. Explaining its impact on the learning process of the young children Goleman says: **“Mirror neurons appear to be essential to the way children learn. Imitative learning has long been recognized as a major avenue of childhood development. But findings about mirror neurons explain how children can gain mastery simply by watching. As they watch, they are etching in their own brains a repertoire for emotion, for behaviour and for how the world works.”**

The developmental psychiatrist Stern from US observes: **“our nervous systems are constructed to be captured by the nervous systems of others, so that we can experience others as if from within our skin. At such moments, we resonate their experiences and they with ours.”**

The social contagion is a very important aspect of the learning process. When our children watch the TV, see the parents at home in conflict, find the peers in aggression or a “He Man” or a “Spider Man” performing a gimmick – the mirror neurons in their brains might get activated. No wonder, we hear sometimes responses simulating their observations, responses which are as aggressive as those seen in what they have captured.

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Social Intelligence (4) The crowd behaviour

Have you ever frequently noticed the following patterns in your school routine?

- After the annual day or the sports day, there is a strong demand from the students (sometimes from teachers too!) to declare the following day as a holiday.
- On the last working day, when the school closes for a mid-term or annual vacation, the children usually shout in joy when the bell is rung.
- Whenever staff members want to make demands, they assemble in groups before the principals' room to make their point

A similar pattern sometimes exhibiting violence and uncontrolled behaviour is seen

- During strikes/bandh
- During political processions
- During election meetings

One wonders often why people even with sober attitudes behave in a very funny manner when they are a part of a group. Possibly you may recall the proverb; “Man is good, Men are bad”. It is worth examining why emotional upsurges occur when we are in a crowd?

In the book “*Crowd and Power*” Elias Canetti describes (as quoted by Daniel Goleman), “**what coalesces a mass of individuals into a crowd is their domination by a “single passion” everyone shares – a common emotion that leads to united action: collective contagion. A mood can sweep through the group with great rapidity, a remarkable display of the parallel alignment of biological subsystems that puts everyone there is a physiological synchrony.**” (While celebrating Holi tomorrow – you might witness some specimens of this collective contagion!)”

Says Goleman “**Crowd contagion goes on even in the most minimal of groups, three people sitting face to face with each other in silence for a few minutes. In the absence of a power hierarchy, the person with the most emotionally expressive face will set the shared tone.**”

Thus, one may see that in a classroom situation even a few students present are good enough to cause a commotion or a conflict. **“The feelings that pass through a group can bias how all the group members’ process information and hence the decision they make. This suggests that in coming to a decision together, any group would do well to attend not just to what’s being said, but to the shared emotions in the room as well.”**

Such group behaviour can be attributed to the presence of mirror neurons in the brain. In a classroom a teacher can very easily observe the patterns of behaviour – one followed by the other, one sympathizing with the other. May be that you recall a situation, in your classrooms, if a student makes a mischief, no student in the class would be willing to point a finger on that student – sometimes however close they are to a teacher, however academically or otherwise they are brilliant.

Please note that **“Scientific observations point to a response system that is hardwired in the human brain – no doubt involving mirror neurons – that acts when see someone else suffering, making us instantly feel with them. The more we feel with them, the more we want to help them.”**

Some neuro-scientists point out that mirror neurons are **“what give you the richness of empathy, the fundamental mechanism that makes seeing someone hurt really hurt you.”**

Most of our behaviour in a crowd can be attributed to the emergence of this social empathy for a cause – quite often emotions giving way to reasons.

Let’s see more about group behaviour in the following issues.

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Social Intelligence (4) Understanding group behaviour

Here is an account of the research findings as quoted in the Science Daily (May 6) published from Gulf: **“In the mid-1990s, scientists at the University of Parma, in Italy, made a discovery so novel that it shifted the way psychologists discuss the brain. After researchers implanted electrodes into the heads of monkeys, they noticed a burst of activity in the premotor cortex when the animals clutched a piece of food. In a wonderfully fictitious account of the discovery, neuroscientist Giacomo Rizzolatti was licking ice cream in the lab when this same region again fired in the monkeys. In an equally wonderful truthful account, the neurons in this region did, in fact, fire when the monkeys merely watched researchers handle food.”** Further experiments indicated **“Mirror neurons fire when monkeys break peanuts in their hands, when they see others break peanuts — even when, in total darkness, they merely hear peanuts being broken. That’s why it’s called a mirror neuron,”** says Iacoboni. “It’s almost like the monkey is watching his own action reflected by the mirror” Mirror neurons appear to have a significant impact in our reaction patterns, social behaviour and inter-personnel relationships. Have you observed the following in your classrooms?

- When one student scribbles on the blackboard, it is followed by a few others?
- When one student stands up or jumps on the bench/ desk, others repeat.
- When one child in the classroom seeks permission to go to the restroom, a few others start seeking permission for the same.
- When one student makes a sympathetic note in the class, others tend to repeat the same.
- When one students starts dancing at the end of a period, why a few others tend to join the chorus
- When one student comes to the table of the teacher for revision of the marks awarded, a few others avail the opportunity.
- In the play field, when one student throws the ball on the other, others tend to pick up similar actions.

A careful analysis of situations in the classroom and the playfield will clearly indicate that most of the actions/reactions of the children are consequent to the way how their minds react..

The article further adds: **“Mirror neurons, it seems, are of the utmost importance in human mind, and on the tip of the collective psychological tongue. “It’s going to make a big change,”** says neuroscientist Marco Iacoboni, University of California, Los Angeles, of the discovery’s impact on psychology. **“Psychological studies started with the idea that a solitary mind looks at the world in a detached way. Mirror neurons tell us we’re literally in the minds of other people.”**

In a 2003 study in the Proceedings of the National Academy of Sciences, a research team found that **“imitating and observing facial expressions activated the same regions of the brain.”** A study in Science a year later showed activity in similar neural regions whether a subject actually experienced a painful stimulus or simply observed a loved one receiving the same shock. To many researchers, these and similar findings suggest that mirror neurons play a large role in empathy. I think a teacher needs to have an insight and understanding of the impact of the neurons to appreciate the behaviour patterns of the students in the classroom so that they do not unnecessarily get agitated with the behaviour of students on certain occasions. An understanding of the social behavioural pattern consequent to the functional pattern of the mirror neurons would help in modifying the strategy of classroom interactions and modifying in one’s one behaviour in order to avoid certain avoidable responses in the classrooms. It appears to be an excellent area for further debate and research

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Social Intelligence (5) The learning behaviour

The mirror neurons seem to impact our learning behaviour soon after a few months of our birth. Research studies indicate how our mental maps are impacted by the emotional inputs of the environment. Here is a piece of research:

“Meltzoff and his colleague Betty Repacholi have found that infants aren’t simply sponges that absorb imitation only to spill it back out as processed. Infants as young as 18 months old can regulate their imitation, the researchers report in the March/April 2006 Child Development. To test such regulation, the researchers played with an object in front of infant subjects. After a while, another person entered the room. Sometimes this person expressed anger toward the experimenter performing the task; other times, the person remained neutral.

After this person left the room, the infants were given the chance to play with the object. At this point, the person who had been either angry or neutral returned to the room. Infants who had seen the neutral person were more likely to play with the object than those who had witnessed the angry outbreak, the researchers report. What’s more, infants who had seen an angry response were more likely to play with the object if the angry person either didn’t return to the room or faced away from the infant.

The research, says Meltzoff, shows for the first time that 18-month-olds can modify their imitation on the basis of their surroundings. “That’s what makes humans different from monkeys,” he says. “Mirror neurons show how what you see can be connected with what you do, but human beings can also regulate their behavior.”

This opens up to the possibility of designing a variety of strategies in the classrooms by the teacher either to stimulate, motivate or modify the existing behavioural pattern of the child. The teacher also needs to understand how their emotional tantrums can impact the learning behaviour of either their disciplines of teaching or learning in a given context where they are themselves involved.

Quite differently, in a grown-up child the inputs of distress from external sources need not result in a similar distress syndrome. It acts differently. Let us see what the research indicates:

“Psychologists are finding that the mature adult mirror system does indeed seem to regulate itself, particularly when it comes to empathy. Such checks and balances occur for our own good. If, through the mirror system, we were able to completely experience the pain of another person, we might constantly feel distressed.

Clarifying this phenomenon might require a temporary substitute for the term “mirror system.” A regulated mirror system acts not as a complete mirror, merely flipping around another’s emotions, nor as a sponge, expelling only what it soaks up. Perhaps the mind is more like a kitchen blender: We understand the raw feelings of a friend in pain, but instead of devouring them whole we mix, chop, and purée them into a more digestible serving. Our blender brains enable us to simultaneously provide support and avoid emotional paralysis.”

The best response to another’s distress may not be distress, but efforts to soothe that distress,” says Jean Decety, University of Chicago, in his article Current Directions in Psychological Science. **“Empathy has a sharing component, but also self-other distinctions and the capacity to regulate one’s own emotions and feelings.”**

This understanding opens up a variety of possibilities of designing response systems in the classrooms. An interactive teacher can put to debate situations which call for responses to crises, distress and panic situations and ask the students to respond meaningfully. The opinions, ideas and views of the students could be put in to discussion to enhance their understanding of the situations, the most appropriate responses they would make, their own understanding of social situations, their ability to withstand to the most compelling distress signals and in bridging the gap between their own understanding of the situations as against the most general understanding patterns in a group.

Schools need to understand that a curriculum is not a syllabi or a compendium of textbooks but the nature of the inputs and the design that would empower learning of each learner. The curriculum needs to take care of not only cognitive components, but the emotional domains also and in designing such curricula, the understanding of the above might be of immense use.

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Social intelligence (6)

Impact of Mirror neurons in the process of learning

The objective of highlighting about the recent discoveries in brain-based research and the discovery of mirror neurons and their impact is just to bring home the fact that our understanding of the process of human evolution is becoming more and more transparent and we are in a position to interpret many of our behavioural patterns as well as our learning patterns to the functions of the brain. This should help us in recasting our vision, restructuring our approaches and redesigning our strategies especially in the context of the classrooms. Increasingly it is becoming evident, that the role of schools as well as teachers is becoming more as facilitators and that learning is a unique process characteristic to each individual. The impact of social, ethical, cultural and other environments in influencing learning is being recognized and accepted without reservations.

Commenting on the discovery of mirror neurons and their possible impacts on our understanding of human cognitive processes, the neuro-bio psychologist Dr. V.S. Ramachandra writes in an article in The Guardian: **“Pizzolatto’s discovery can help us solve this age-old puzzle. He recorded from the ventral premotor area of the frontal lobes of monkeys and found that certain cells will fire when a monkey performs a single, highly specific action with its hand: pulling, pushing, tugging, grasping, picking up and putting a peanut in the mouth etc. different neurons fire in response to different actions. One might be tempted to think that these are motor “command” neurons, making muscles do certain things; however, the astonishing truth is that any given mirror neuron will also fire when the monkey in question observes another monkey (or even the experimenter) performing the same action, e.g. tasting a peanut! With knowledge of these neurons, you have the basis for understanding a host of very enigmatic aspects of the human mind: “mind reading” empathy, imitation learning, and even the evolution of language.”**

This observation is very significant and various cognitive psychologists have started reviewing the existing theories of learning social behaviour, learning of languages, the processes and dynamics of training and related cognitive issues. Dr. Ramachandra adds

“Anytime you watch someone else doing something (or even starting to do something), the corresponding mirror neuron might fire in your brain, thereby allowing you to “read” and understand another’s intentions, and thus to develop a sophisticated “theory of other minds.” (I suggest, also, that a loss of these mirror neurons may explain autism – a cruel disease that afflicts children. Without these

neurons the child can no longer understand or empathize with other people emotionally and therefore completely withdraws from the world socially)."

Reflecting almost the same sentiments of Dr. V.S.. Ramachandra, Sandra Blakeslee writes in the New York Times, **"The monkey brain contains a special class of cells, called mirror neurons, that fire when the animal sees or hears an action and when the animal carries out the same action on its own. But if the findings, published in 1996, surprised most scientists, recent research has left them flabbergasted. Humans, it turns out, have mirror neurons that are far smarter, more flexible and more highly evolved than any of those found in monkeys, a fact that scientists say reflects the evolution of humans' sophisticated social abilities.**

The human brain has multiple mirror neuron systems that specialize in carrying out and understanding not just the actions of others but their intentions, the social meaning of their behavior and their emotions.

"We are exquisitely social creatures," Dr. Rizzolatti said. "Our survival depends on understanding the actions, intentions and emotions of others." He continued, "Mirror neurons allow us to grasp the minds of others not through conceptual reasoning but through direct simulation. By feeling, not by thinking."

The discovery is shaking up numerous scientific disciplines, shifting the understanding of culture, empathy, philosophy, language, imitation, autism and psychotherapy.

Everyday experiences are also being viewed in a new light. Mirror neurons reveal how children learn, why people respond to certain types of sports, dance, music and art, why watching media violence may be harmful"

Do you think there is a lot of message for the teaching and parent community in the prints in the last paragraph?

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Social Intelligence (7)

Can mirror neurons help in virtual learning?

During one of my recent discussions with entrepreneurs engaged in the delivery modes of good classroom situations and practices, concerns were expressed about the expanding domains of school education and the need and urgency for extending the best practices available in certain pockets to other areas which suffer from poverty of good practices and resources. One of the instruments through which the situation can be remedied is possibly opening more virtual classrooms across the country where the expertise can be beamed into the screens in the closed walls of the classroom.

The following questions arise:

1. Can we replace a live teacher in the classroom?
2. Can a virtual teacher provide the same kind of emotional linkage to the students as the live teachers?
3. Can the virtual classrooms offer the same level of motivation as real classrooms?
4. Will virtual classrooms sustain the level of motivation of the students?

Some of the recent researches on the behaviour and the neural networks seem to give some clues to answer the above questions. Here are some excerpts of an article published in the conference papers of European Science Foundation.: **Intentional Attunement. The Mirror Neuron system and its role in interpersonal relations**
Vittorio Gallese

“Several studies using different experimental methodologies and techniques have demonstrated also in the human brain the existence of a mirror neuron system matching action, perception and execution”

The establishment of such a relationship between action, perception and execution is a matter of great significance in interpreting the human cognitive processes and behaviour patterns. Possibly this explains why most of us tend to be imitative, tend to do what others do, tend to buy things what others buy and do several actions sometimes even without application of our own mind. This also helps to believe the possibility of imparting the same sequences of action,

perception and execution through training or impacting their mirror neurons either consciously or unconsciously. The future research in the field of cognitive research might find the answers.

The author continues to observe: **“The mirror neuron system for action is activated both by transitive, object-related and intransitive, communicative actions, regardless of the effectors performing them. When a given action is planned, its expected motor consequences are forecast. This means that when we are going to execute a given action we can also predict its consequences. The action model enables this prediction. Given the shared sub-personal neural mapping between what is acted and what is perceived – constituted by mirror neurons – the action model can also be used to predict the consequences of actions performed by others. Both predictions (of our actions and of others' actions) are instantiations of embodied simulation, that is, modeling processes.”**

The above views possibly render some strength to the case of the efficacy of virtual inputs to learning. It renders strength to the idea of modeling processes that could cause similar or same perceptions and result in the similar or same actions. This helps in the idea of replication of good practices from one place to the other either through live modes or through virtual modes. This argument is further strengthened by the readings on the effector –target interactions as detailed in the following statements:

“Embodied simulation automatically establishes a direct experiential link between agent and observer, in that both are mapped in a neutral fashion. The stimuli whose observation activates mirror neurons, like a grasping hand, its predicted outcome, and the sound it produces, all consist of the specific interaction between an agent and a target. It is the agentive relational specification to trigger the mirror neurons’ response. The mere observation of an object not acted upon indeed does not evoke any response. Furthermore, the effector-target interaction must be successful. Mirror neurons respond if and only if an agentive relation is practically instantiated by an acting agent, regardless of its being the observer or the observed. The agent parameter must be filled. Which kind of agent is underspecified, but not *unspecified*. Indeed, not all kinds of agents will do. The abovementioned brain imaging experiment on communicative actions shows that only stimuli consistent with or closely related to the observer’s behavioral repertoire are effective in activating the mirror neuron system for actions (Buccino et al. 2004)”.

The argument in the above that “the mere observation of an object not acted upon indeed does not evoke any response” is something which needs to be carefully looked into. It is important to have “stimuli whose observation activates mirror neurons” - a point which the entrepreneurs of the virtual world need to take note of.

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Creativity – how do we look at it? (1)

We have so far been dealing with several dimensions of intelligences, how people perceive it, what are the recent researches and development in these fields. We also examined many of them in the context of students, teachers, classroom situations etc., Finally the question arises: what is the purpose of all these intelligences? Suffice it to say that these are indicators of the fact that every learner, every human being is distinctly different from one another and are unique. In a classroom situation, the teacher is expected to use the knowledge of the above to enhance the creative competencies of the learners. From now on, for the next few issues we would learn some issues relevant to our understanding of creativity and what types of initiatives could be taken in the classrooms to focus on the same.

Any attempt to define creativity is like scaling the canvas of the sky. Just as one would look at the sky and wonder, just as one would extend his vision to as farthest point as possible to accomplish a reach, just as one would exercise his or her mind and the body with a fantasy to capture the unknown into the realms of the known, so would be any exercise to capture the real meaning of creativity. The perfect definition is possibly beyond all that is cognized, possibly beyond all that is perceived or experienced. As certain absolutes cannot be summarized in the dictionary of the known words of a language, the idea of creativity cannot be comprehended in the formats of a language. Yet, the human curiosity to roll it into certain definitions and pocket it has been a continuous exercise.

The world of creativity

In his book *“Creative Teachers, Creative students”* (1997), John Baer states **“Creativity refers to anything someone does in a way that is original to the creator and that is appropriate to the purpose or goal of the creator.”** The above definition is a very broad-based attempt to encapsulate all human endeavours into the parameters of creativity put in the context of the individual and his own environment. While enlarging the definition of creativity, this appears a too simplistic approach to creativity. It possibly fails to distinguish actions that are unique, productive, aesthetic and constructive from those common actions that would fall into a routine.

Murphy, a well-known educational psychologist observes: **“desire to create must be almost universal; and that almost everyone has some measure of originality which stems from his fresh perception of life and experiences, and the uniqueness of his own fantasy when he is free to share it.”** This definition while acknowledging the universality of the process of creativity, frames it into select vocabularies of originality, freshness, perception, experiences, uniqueness, fantasy, freedom and ability to share.

Characteristics of creative persons

This leads to following characteristics of creative persons:

- **They have an innate desire to create**
- **The creative process stems from the latent originality**
- **The creative persons have a fresh perception of life**
- **They tend to seek new experiences**
- **They yield to fantasies of mind**
- **They tend to convert the fantasies into unique communications.**
- **They live in a world of freedom**
- **They are keen to share their perceptions and experiences with others**

There have been serious debates on the behavioural and thought patterns of creative individuals. While some claim that creative persons tend to be highly focused on their target, others claim that they are highly flexible and pick the opportunities that knock at the doors of their mind.

Receiving the right signal

Goleman, Kaufman & Ray in their book *“The Creative Spirit”* comment: **“Most of the information people get about a problem is of little or no use, while some is absolutely crucial; the key to creative problem-solving is being able to detect the relevant “signal” amid the irrelevant “noise”**

This opens yet another dimension of the creative personalities – their ability to detect “signals” amid “noise”. This calls for powerful observation, deep insight, power of discrimination and the ability to focus.

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Schooling the kid Creativity -2

Dean Simonton observes: “Most of history’s great creators didn’t just have their hands in one basket. They would have lots of different things going on. If they ran into obstacles in one area, they put aside for a while and moved on to something else. By having multiple projects, you’re more likely to have a breakthrough somewhere... you’re always moving along.”

It may be quite difficult to agree with the above proposition in totality. While this observation reflects the innate freedom experienced by the creative persons, their versatility, their perseverance and their ability to breakthrough amidst failures, it appears to picture them more like nomads in the universe of creativity. This may deprive the creators of the much-needed respectability they deserve for all their efforts.

The mystery of creativity

The question, therefore, is: what is the mystery about creativity?

In finding an answer to this question Dr. Jack Oliver, a geo-physicist in the Irving Porter Church, Professor of Engineering at Cornell University in his book *Creative Thinking* observes:

“There is something mysterious about creativity. We can describe it, admire it, strive for it and experience it, but we can never understand how or why a certain innovative idea springs up at a particular time in the mind of a particular individual. Indeed, most people never expect to understand or master the process.”

Though many psychologists may not tend to agree or compromise with a situation with this kind, they may also claim that this does not settle the scientific pursuit of a mental process. They would rather seek aggressively processes that would remain embedded in the universe of the neurons in human brain.

The issue of the pursuit of creativity as a formal process trained through abilities to restructure mental frames has also been the advocacy of many recent thinkers on creativity. As opposed to this many educational psychologists have believed that genuine ignorance has possibly opened the doors for creativity when it has been supported by the curiosity to seek the unknown.

Dewey's perception

John Dewey, the famous educational psychologist and advocate of pragmatism, states: “Genuine ignorance is profitable because it is likely to be accompanied by humility, curiosity, and open-mindedness; whereas ability to repeat catch-phrases, can't terms, familiar propositions, gives the conceit of learning and coats the mind with varnish waterproof to new ideas,”

While there could be no argument on the validity of Dewey's contention on imitation as a threat new ideas, in a world flooded by information the influence of the environment on the mental processes are so strong and evident that it may be extremely difficult for an individual to remain uninfluenced by them. The environment could be a potential threat to the creative faculties of the individual as it has the power to corrupt the silence and reflective possibilities of a stable mind.

Further human interactions are so strong that such collaborations might impact the individual's creativity. While there is a strong argument that a team could synergize their creative potentialities and could maximize creativity, there are arguments to the contrary.

John Steinbeck argues: “Nothing was ever created by two men. There are no good collaborations, whether in music, in art, in poetry, in mathematics, in philosophy. Once the miracle of creation has taken place, the group can build and extend it, but the group never invents anything. The preciousness lies in the lonely mind of a man.”

The power of this argument cannot be taken too far in a composite world which has become too complex and too interdependent. History is evidence to the contrary. Many innovations appear to be collateral in terms of the origin of their thought, the dynamics of their development and reflect synergy of the wisdom of difference.

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Schooling the kid Creativity -3

The nature of the human being

Every human being is born with a creative instinct. From the time of birth, he or she encounters a series of opportunities to interact with the surroundings and the environment. In all such encounters he or she experiences a sense of awe, wonder, surprise, or fear. The human mind responds to these experiences and the individual interprets all these experiences in one's own way. These interpretations, meanings and constructs of mind are characteristic of the creative urge latent in the being. The expression of these experiences, their communication to the external environment, the form and shape through which they are carved, the aesthetic nuances with which they are decorated to suit to the mood and mind of the receptor are all tender manifestations of the creativity of the human being.

Martin Buber says "Creation happens to us, burns into us, we tremble and swoon, we submit. Creation – we participate in it. We encounter the creator, offer ourselves to him.."

The dynamics of growth

The dynamics of growth of every individual is most often ordained with challenges. Each challenge provides an opportunity to face the unknown or the unreal. The interfaces of such challenges may provide either courage or fear. Courage is a positive feeling and enables the mind of the individual to stand up to the difficulties, to allow them to pass over or to seek alternate pathways so that these challenges do not really impact. Fear is a negative feeling and causes withdrawal symptoms in the mind sometimes leading to loss of self-confidence, depression and sometimes leading to self-pity. Nevertheless, challenges do provide opportunities to the individual to explore the creative domains of mind in one way or the other.

"This fundamental truth of the self can be realized only if the individual is willing and courageous enough to follow to some natural conclusion this moment of experience, this facing the unknown and participating with the total commitment of the self. Such expression, such passion for life may emerge in written, spoken, graphic or aesthetic forms in relation or in isolation, in I – Thou encounters; and in silent inner experience." Says, Clark Moustakas.

The latent creative urge

Thus, every individual lives with a passion for life, a passion that is unique to his or her own existence. The existence reveals through this passion and the revelation manifests in various forms through the process of life – at home, at workplace, at leisure, in relationships and in most forms of communication. Thus, the creative urge of the individual exhibits at all places – sometimes visible, most often invisible; sometimes tangible to others, many a time intangible to others; sometimes in discreet expressions and quite often in silent solitudes.

The truth is – all of us creative! The difficulty is – we cannot prove or convince others always that we are creative. Thomas Jefferson, the architect of the freedom of United States, says, “Do you want to know who you are? Don’t ask- Act! Action will delineate and define you.”

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Schooling the kid Creativity -4

Traits of creativity

Though every individual exhibits traits of creativity, it surfaces in some perceivable form in some individuals. What are the personality traits of such creative individuals?. Dr. Gary A. Davis, Professor of educational psychology at the university of Wisconsin and author of “Creativity is forever” identifies the following as some important traits:

- Ability for Visualization
- Ability for Imagination
- Ability to make mental transformation

He adds “Creativity is not just a collection of intellectual abilities. It is also a personality type, a way of thinking and living. Although creative people tend to be unconventional, they share some common traits. For example, creative thinkers are confident, independent, and risk taking. They are perceptive and have good intuition. They display flexible, original thinking. They dare to differ, make waves, challenge traditions and bend a few rules.”

Types of creative personalities

Abraham Maslow identifies two different types of creative personalities – Self-actualized creative person and Special-talent creative person.

Describing the profiles of both types, he says of the self-actualized “he or she is well adjusted, mentally healthy, democratic minded and forward growing.” He is energetic and productive in all the areas. In contrast the special-talent creative person “has a great ability in a particular area but may not be psychologically adjusted.”

Freedom and creative individuals

John G.Young discussing Psychic Freedom in Creative Persons observes “Conceptual creativity requires psychic freedom.” He adds “Creative persons are freer than noncreative persons.” Thus, the creative persons enjoy an element of freedom in their thought patterns and hence have their mental frames open to external stimuli.

Confirming the above premise, Jessica Whiteside of University of Toronto observes in her article “Biological basis for creativity linked to mental illness” in the Journal of personality and social psychology, “the brains of creative people appear to be more open to incoming stimuli from the surrounding environment. Other people’s brains might shut out this same information through a process called – “latent inhibition”.

The Extra Information

Further interpreting the above observation Jordan Peterson of the same university says, “the creative individuals remain in contact with the extra information constantly streaming in from the environment.”

Reflecting on this extra information streaming into life from outside and bridging itself with the soul of the individual, Romain Rolland points out “The more we create, the more we love and lose those whom we love, the more we escape from death. With every new work we round and finish, we escape into the work we have created, the soul we have loved, the soul that has left us. When all is told, Rome is not Rome; the best of a man lies outside himself!”

The umbilical bridge

Thus, the creative urge acts as an umbilical bridge between the inner element and the outside elements. Once this is understood, every individual would be looking for that beautiful external world within oneself, and the manifestation of the self in the beautiful external world. It is a bridge of love between the known and the unknown, the conscious and sub-conscious, the material and the abstract.

This bridge of love is unique to every living and vibrant individual. If an individual is unable to construct this bridge, he lives more in the world of others than his or her own self. He or she lives the life of others than one’s own life.

Finding oneself

Dr. George Sheehan details this beautiful outfit of human existence in the following words: “The key then is to find your own mountain; otherwise you will be competing with people who are not even in your event - and running up against the ‘shoulds’ and ‘oughts’ of that world; and the inevitable frustration and depression and feelings of failure. A person can be complete or incomplete, but one thing is sure, he cannot be someone else.”

The first step to creativity, therefore, is to – identify our own mountain and be a complete being and always be our own selves.

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Creativity -5

Characteristics of Creative persons

Henri Bergson states “To exist is to change, to change is to mature, to mature is to go on creating oneself endlessly.” Creative persons are those who always look for changes and thus are in the process of discovering themselves. Affirming this view, Pablo Picasso observes: “I am always doing that which I cannot do, in order that I may learn how to do it.”

The observation of Picasso outlines the characteristics of courage, persistence, willingness to learn, seeking to venture on new domains.

Broadly we may indicate the characteristics of creative persons as follows:

- Curiosity
- Original thinking
- High level of motivation
- Passionate interest
- Self-confidence
- Independent thinking
- Unconventional approach
- Sense of enthusiasm
- Sense of enterprise

Curiosity is an innate virtue of a creative person. He or she is looking at their environment and workplace with a sense of awe and surprise. This infuses a sense of curiosity in them. It manifests in the following forms:

- **Curiosity to know**
- **Curiosity to explore**
- **Curiosity to experiment**
- **Curiosity to challenge**
- **Curiosity to change**

Many of those who have made landmarks in the field of creativity and innovation have been haunted by curiosity.

Curiosity to know

“No one has ever had an idea in a dress suit.” says Sir Frederick Banting. The curiosity to know is nothing but the call of the inner voice to expand the domain of one’s existence. The process of acquisition of knowledge enables greater and deeper dissolution of the knowledge of the self or the knowledge of the known with those of the unknown. The mind of the creator is always open to ideas, open to suggestions and open to differing opinions. The domain of knowledge calls for continuous food for its hunger and operates as the identity or a visiting card of the creator to a universe to which he seeks an entry.

Curiosity to explore

Curiosity to explore is a powerful trait of a creative being. Like a child trying to make a meaning out of the toys around him or her, the creative individual is in a process of continuous exploration of the world around him. This may be task-specific or situation-specific. In the process of exploring, he often displays a childlike behaviour, a sense of innocence or foolishness. The curiosity to explore sometimes emerges as a fire from within and does not stop till the creator’s urge is reasonable satisfied. Roadblocks or failures in the process do not stop or wither him. Most often the failures or roadblocks act as motivators or catalysts to accelerate him to the achievement of the goal. Mike Berridge claims that most scientific discoveries are like battles fought. “It is extremely difficult because you are up against nature. very much like a battle. You are like a general marshalling his forces to try and unlock some of the secrets.”

Harry Crews observes “the artist lies in an atmosphere of perpetual failure.”

**The most important of my discoveries have been suggested to me by my failures
- Sir Humphry Davy**

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Creativity -6

Curiosity to experiment

Curiosity to experiment is born out of the inner urge of the creator. Whenever the creator finds a problem, whenever he finds something that seeks to provoke his thinking, whenever he finds something which indulges one in fantasies, he seeks to experiment with them. The creator becomes restless. The mind and body of the creator remains in constant communication with the subject to be experimented till he finds an answer.

History has evidence of many of the creators and innovators who have sacrificed all they had just in quench of their thirst for knowledge.

I saw an angel in the marble and carved until I set him free - Michelangelo

The best parachute jumpers are those who jump themselves – Anonymous

Curiosity to challenge

Explorers and persons with creative indulgence are known often as dare devils. They challenge the most difficult situations and problems. Quite often, they seek solutions at the cost of a great risk. They enjoy risk taking. Curiosity to face challenges infuses in them the necessary life-spirit and they pursue their task with a strong conviction and courage.

The history of science and technology is abundant with the episodes of persons who have displayed unparalleled courage in the pursuit of their tasks.

Every act of creation is first of all an act of destruction. -Pablo Picasso Spanish painter, sculptor

No daring is fatal. The whole logic of the universe is contained in daring, in creating from the flimsiest, slanderous support - Rene Crevel

If a man is to shed the light of the Sun upon other men, he must first of all have it within himself- Romain Rolland

Facing it, always facing it, that's the way to get through. Face it - Joseph Conrad

Curiosity to change

Any act of creation is associated with a change. Hence a creator visualizes a change, formulates a change and designs the process of change. Very often, a change calls for destruction of the old and reconstruction. The creator is therefore called upon to deviate from the path of the known and the established. He is not deterred by the opinions of others or by the acceptability of what has been created. He finds joy in execution of what he has visualized.

Removing the faults in a stagecoach may produce a perfect stagecoach, but it is unlikely to produce the first motor car. – Edward de Bono

Limitations aren't a problem; they are a value. The danger is getting into situations that lack limitations.If you don't create boundaries, you don't create definitions. You get involved in generalisms.

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Creativity -7 **Original thinking**

Creative people always tend to be different. They seek to approach problems with a sense of uniqueness characteristic of their own. They shun conditioned thinking. They do not want to follow beaten paths. They have more “why?”s and “Why not?”s in their mind than their contemporaries. They hesitate to accept things as they are and look for a context and meaning for what they see and what they experience.

Who will give me a good thought for a tonne of gold? – Khalil Gibran

Some of the qualities of creative persons are:

- Challenging statements and concepts
- Visualizing differently
- Seeking new meanings
- Unconventional thinking
- Divergent thinking
- Challenging complexities
- Tending to be flexible
- Seeking fluency in ideas and experiments
- Looking for richness of details

Most discoveries have been made by the ability of people to question. They do not necessarily exhibit a high sense of intellectual competencies, but they look at concepts from a differing perception. This is born out of the freedom they enjoy to think. Their mind resists limitations and seeks to identify new avenues for answering a problem. Lateral thinking, analytical thinking and critical thinking are some common traits of such individuals.

Very often it has been debated whether these are genetic traits or trainable? Experiments have shown that while many do have these qualities as generic qualities, it is quite possible to train learners as lateral, analytical, critical and divergent thinkers. Given an appropriate environment in the learning rooms, the students can pick up some of these traits and can get tuned to the new ways of thinking.

It must however be clearly understood that the faculties of mind involved in creative thinking are entirely different from those of lateral, analytical and critical thinking. While many of the faculties of mind involved in these processes may contribute to develop the process of creative thinking they are not essentially supplementary

Robert Harris in his article on Introduction to creative thinking differentiates the attributes of critical thinking with those of creative thinking in the following manner:

Critical thinking	Creative thinking
Analytic	Generative
convergent	Divergent
Vertical	Lateral
Probability	Possibility
Judgment	Suspended Judgment
Focused	Diffuse
Objective	Subjective
Left brain	Right brain
Verbal	Visual
Linear	Associative
Reasoning	Richness & Novelty

It may be seen from the above that creative thinking calls for an entirely different dimension of mental faculties than other types of thinking. As such, creative thinking is more a stress-free thinking as compared to other forms of thinking. It is supported by greater fluidity, flexibility, space and time.

I want to know the mind of God, rest are details – Albert Einstein

It is important that we should give our learners adequate opportunities to think differently and approach a problem with newer perspectives. Most often they are led to condition thinking.

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Creativity -8

“As people grow older, they become prisoners of familiarity” says Roger von Oech. Providing a learner with repetition of the same learning opportunities conditions the way their mind operates and as Herman Kahn observes such experiences lead to building “educated incapacity”

Here is another episode:

In one of the schools in Britain, in the early part of the nineteenth century, a physics teacher gave a test to the students. One of the questions he had raised in the paper was: “How would you measure the height of a building using a barometer?”

When the test papers were evaluated and distributed to the students, one of the students approached the teacher stating that he has been marked wrong and given a zero out of 5 marks though he had written the answer correctly. The teacher, after perusing the answer book said “ Your answer may be right, but it is not scientific. That is not what I want.”

The matter was referred to an arbiter. The arbiter called the boy and said that he should write the correct answer again and will be given six minutes. After six minutes, the boy gave a blank paper and the arbiter was shocked at the way the student conducted himself.

The arbiter said: “ That means you don’t know the answer.”

The student replied: “ Sir, I know many answers. But I don’t know which answer you want.”

The arbiter was shocked and quipped:” Many answers? Can you say.. ?”

The boy said: “Sir, you go to the top of the building and hold the barometer, Tie a thread and allow that to fall to the ground. Measure the height of the thread and that’s the height of the building.”

:"Sir," he continued "Take the barometer to the top of the building and attach a pendulum to that. Allow the pendulum to oscillate. From the amplitude, you can calculate the height of the building."

"Sir, you can take the barometer to the ground, find the value of g and then find the same from the top of the building. From that you can calculate the height of the building."

The arbiter was surprised. The boy continued:

"Sir Hold the barometer on the sunshine. Calculate the height of the shadow caused by the barometer. Find the height of the shadow caused by the building at the same time. From the ratio and proportion, you can calculate the height of the building."

He continued with his answers. Finally, the arbiter asked him: " Even now, you are not telling the correct answer."

The boy replied: " Sir, I do not want to think the way the teacher has taught me to think"

The boy became a great scientist later. He was Neils Bohr, who came with postulates on the quantum theory. The arbiter was Lord Rutherford who was known for his nuclear model of atom.

The two episodes clearly indicate how creative persons visualized a problem through different perspectives. They tend to conceptualize and envision the problem in their own way which helps them to approach it with a new perspective and thus to find a solution.

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Creativity -9

Motivation

A person may be motivated towards a task for various reasons. Normally motivation towards something is born out of love and affection towards a particular subject or a task. Sometimes exterior reasons like material considerations, fame, power, position or social recognition could be the source of motivation. But the motivation for a subject or a task decreases abruptly when the exterior considerations are no more valid or non attainable. But tasks to which an individual remains motivated due to an interior urge or a calling of the soul remains a permanent source of motivation and the affinity for the subject continues even after the completion of the task.

If you have built castles in the air, your work need not be lost. That is where they should be. Now put the foundation under them.
- Henry David Thoreau

Motivation, in true sense comes from within. It attains the form of self-actualization. One gets motivated for the simple love of doing a particular thing. Most creative persons have pursued their goal for they had a passion to fulfill. They had a passion to answer the call of their soul.

Motivation leads to commitment. They remain wedded to the task against all odds. They exhibit an extraordinary sense of bravery which they had themselves not been aware of.

Marie Curie was highly motivated to the pursuit of science. No number of roadblocks to her pursuit could stop her achieving the goal. Her success was not designed in a laboratory of highly technical infrastructure. It was on a cowshed.

Sir C.V. Raman was selected for Indian Audit and Accounts Services. His longing for science was so intense that he ventured to leave the lucrative position and pursue his ambition in science. Again, Raman's discoveries were not formulated in a laboratory of excellent infrastructure. What mattered was his motivation, his commitment and his passion for pursuit of excellence, an urge to be creative.

Creative geniuses who exhibited high level of motivation were not exclusively from the field of science and technology. People like Beethoven, Picasso, Oliver Goldsmith and several others stand testimony to the process of self-actualization.

Passionate interest

There are many individual who have a high level of motivation. But they have no wherewithal of attaining the goals. They do not exhibit adequate interest or passion for the subject or the task they had undertaken. It is important that the motivation should manifest itself to a passionate interest with a do or die attitude. This passion should manifest into action and sustained interest in achievement of the goal.

Motivation is like food for the brain. You cannot get enough in one sitting. It needs continual and regular top ups. - Peter Davies

**To fight a bull when you are not scared is nothing. And to not fight a bull when you are scared is nothing. But to fight a bull when you are scared – that is something.
- Anonymous Bullfighter**

Here is a story:

At Cambridge, many a time Newton forgot to eat his dinner and often went to bed with all his clothes on. Once when the dinner was served, he completely forgot about it and got engrossed in some problem. Dr. Stukely, a friend who was waiting for him, grew hungrier and looking at the untouched dinner of Newton helped himself. When Newton returned and saw the empty plate, he remarked “Dear me!, I really thought I have not dined, but I see I have.”
The passionate interest Newton had for his work was the source of his genius.

A life of passionate interest

Born as the son of a poor blacksmith and driven by poverty, Faraday(1791-1867)started his career as an errand boy and later became a book-binding apprentice with a book seller. Attracted by the lectures of Sir Humphry Davy, he persisted on a job in his laboratory. He was given the job of a bottle washer. His continued interest in science made him write the book *Historical sketch of Electromagnetism* in 1821. The success story of Michael Faraday is history. His life is a typical example of the pursuit of passionate interest in a subject he loved.

Says Edelman, the noted scientist who worked on antibodies about his adventure: “People thought I was crazy.. and although didn’t shy away from me at the lunch table, they thought my work was pretty preposterous.” However, his passionate interest for his field of research so much all criticisms didn’t deter his continuation of the work.

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Self-confidence

As any creative task is a journey to unknown vistas of knowledge, unless the seeker has a high degree of self-confidence he may possibly get disheartened and leave the task before achieving the goal. Self-confidence is born out of the conviction, courage, clarity of vision, commitment and the will to perform. As all these qualities are not extrinsic, it has to be a part of the psyche of the seeker of knowledge. Failures do not defeat these persons and they convert adversity into an opportunity. They exhibit a sense of ownership to the task they have undertaken and hence remain as an integral part of the process.

**Kites rise highest against the wind -- not with it.
- Sir Winston Churchill**

If you have built castles in the air, your work need not be lost. That is where they should be. Now put the foundation under them. - Henry David Thoreau

Independent thinking

Creative persons are not influenced by the thoughts of others. They exercise their own mind and develop their own ideas. They are not a part of the masses. They tend to provide leadership by the uniqueness of their thought. They have the courage to disagree with others.

History has recorded in golden letters the names and actions of those persons who have sacrificed their lives because of their independent thinking.

Aristotle had to consume a cup of hemlock to end his life.

Lavoisier was beheaded in 1794 as a punishment to his scientific research and strong views on the status of science.

Charles Darwin faced a mammoth opposition for his independent thinking expressed through Origin of Species.

Priestley was chased out by the people of Birmingham and later he took refuge in the newly formed USA. He lived in exile

Thus, persons with independent thinking have always faced a rough weather in the journey of their life. Yet they had stuck to their pursuit of truth. They have always provided the leadership for the future.

Unconventional approach

Creativity has always been associated with breaking of borders. The creative geniuses have always looked at the problems in an entirely unconventional manner. The history of alchemy is proof to the fact. Though none of the alchemists could either turn a baser metal into gold, or prepare Elixir de life, they had many victories in their journey – many of them which they had never thought of. Various unconventional approaches they made to solve their problem got them newer perspectives to issues, newer products and newer innovations.

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The discovery of rabies vaccine by Louis Pasteur was totally an unconventional approach to the established methods of scientific pursuit.

While praying at a cathedral, Galileo was attracted by the uniform swinging of a hanging chandelier. Galileo's brain could immediately gauge the immense possibility of the discovery about the pendulum.

It was initially thought that all organic compounds occurred in nature and they cannot be made in laboratory. It was left to the German scientist Wohler who could convert an inorganic compound Ammonium Thio-cyanate to Urea which was an organic compound.

Ronald B. Standler claims "Being creative is extraordinarily difficult work that is essential to progress! Any society seems to delight in making it more difficult by denying resources to creative people who need them. The way to succeed in spite of these artificially created burdens is to have some combination of the following character traits:

- Persistent
- Tenacious
- Uncompromising
- Stubborn
- Arrogant

Most people would characterize these traits as negative or undesirable qualities, yet I believe they are essential to innovation. By arrogant, I mean trusting one's own judgment and ignoring other people's adverse opinion."

Prof. Stenberg of Yale University had identified the following traits as essentials to creativity. He believes that lack of even one item in the list precludes creativity.

- Intelligence
- Knowledge
- Thinking Styles
- Personality

- Motivation
- Environmental context

Detailing the different types of intelligences as – Synthetic intelligence, Analytic intelligence and practical intelligence – he argues that “without practical intelligence the creative persons will not be allocated with resources to develop their ideas, and the creative person may achieve recognition only posthumously.”

Throwing light on the type of knowledge required, Stenberg says “too much of knowledge may block creativity, by immediately providing reasons why a new idea is not worth pursuing and by encouraging a person to rigid thinking.”

Focusing on the thinking styles of the creative persons, he observes: “creative people question conventional wisdom, instead of passively accepting that wisdom. Creative people question common assumption and rules, instead of mindlessly following them.”

Describing the personality of the creative people, the author states: “ Creative people have the courage to persist, even when the people around them to provide objections, criticism, ridicule and other obstacles”

Differentiating the two type of motivation – intrinsic and extrinsic – he believes that most creative people are intrinsic rather than extrinsic. While intrinsically motivated persons enjoy their work and set their own goal, extrinsic motivation plays an insignificant role in making them creative.

He believes that a good environment is a vital input to creativity.

It can observe from the above discussions that to outline a single formula for the profile of the creative persons would not be wise, rather they would never fit into them.

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EARLY CHILDHOOD AND CREATIVITY

Child is the father of the Man

It is generally argued that creative abilities of individuals develop from their early childhood. The axiom “child is the father of the Man” is often used as a potential statement to indicate the developmental traits of the young children. Scientists and social researchers have argued on the critical importance of the first few months as well as the early years of a child’s life. Neuropsychological studies have shown the strong networking of the synaptic bases and neurons in the human brain consequent to early experiences in life. They believe that provision of adequate stimulation to the brain cells in the early years of life prepares the way for later growth and development. On the contrary, absence of such stimulations also seems to make such growth development a difficult process in the later years of life.

It is also important that the creative abilities in early years need to be distinguished from strong cognitive abilities. Ward (1974) has expressed concern on the possibilities of such differentiations. Later studies by Moran and others have shown that creative abilities can indeed be distinguished from cognitive abilities.

Creativity and gifted children

It is also argued that most often the competencies of “gifted” children are confused with those of creative children. “Gifted” children need not have creative talents. They may only exhibit a high degree of cognitive abilities or intellectual quotient. Creative competencies do not necessarily go with either high degree of intellectual quotient or cognitive abilities. Studies have shown that many gifted children are not necessarily creative, and many creative learners do not necessarily have intellectual quotient. This takes us to a new paradigm of identifying the competencies of the creative learners and differentiating them from learners with a higher I.Q.

It must also be understood that exhibition of some specific talents in music, arts or theatre are not necessarily indicators of the creative potential of the learners always. They might be picked up by the students due to strong motivational factors and development of affinity towards a subject. Such passions or interests may vanish after a period of time due to various reasons.

Focus on desirable behaviours

Physicist Gordon Shaw of the University of California, Irvine, based on his research on the effect of piano training on three and four-year old's concluded that "music training produces long-term modifications in neural circuitry." Similar relationships could be established with other forms of learning. This leads to the understanding that early childhood education could be influenced to modify the desirable behaviour of the child by appropriate tools of learning.

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Thinking skills

It is also claimed by several educationists that it is important to focus on thinking skills in early years. Arguing that not all children are creative, they support the view that focusing on thinking skills would take care of the entire gamut of learners including those who tend to exhibit creative talents.

Reflecting on the above, Norris (1985) observes **“Having a critical spirit is as important as thinking critically. The critical spirit requires one to think critically about all aspects of life, to think critically about one’s own thinking, and to act on the basis of what one considered when using critical thinking skills.”**

Validating the above view Beyth-Marom et al. (1987) states **“Thinking skills are necessary tools in a society characterized by rapid change, many alternatives of actions, and numerous individual and collective choices and decisions.”**

While educational psychologists have tried to define thinking skills in various terms and define the types and parameters of these skills, it is also seen that teaching higher order thinking skills is relevant and more important. They tend to impact the thought patterns of learners of early age and facilitate in developing specific attitudes to problem solving.

Commenting on the above, Robinson observes: **“While the importance of cognitive development has become widespread, students’ performance on measures of higher order thinking ability has displayed a critical need for students to develop the skills and attitudes of effective thinking.”** Such higher order thinking skills may lead to them to take up creative pursuits.

Confirming the above point of view, Ristow admits **“However a great deal of research currently being reported indicates that the direct teaching of creative skills can produce better and more creative thinkers.”**

Curriculum for different learning pursuits

All these point to development of a curriculum that is holistic and would facilitate all types of learners not only to achieve their goals but to maximize their learning to become creative individuals. Focusing on this view, the National Association for the Education of

Young children in United states observed in its position paper “that children demonstrate different modes of knowing and learning and different ways of representing what they know.” This position is supportive of the stand taken by the Howard Gardner’s Multiple Intelligence Theory.

Process oriented learning

Advocating a “process-oriented” approach to learning, Wider and Greenspan suggest the following guidelines to teachers:

- Ensure that children have access to a rich environment that encourages exploration and choices
- Provide children enough time to get fully involved in an activity and benefit from it
- Consider play as an opportunity to integrate all learning experiences and skills
- Make learning interactive and fun
- Identify and make gorals for the specific learning tasks for each stage of emotional development

James D. Moran argues in his paper on Creativity for Young children that “Ideational fluency is generally considered to be a critical feature of the creative process. Children’s responses may either be popular or original, with the latter considered as the evidence of creative potential.”

It is important that children be given the opportunity to express divergent thought and to find more than one route to the solution.

Where all think alike, no one thinks very much – Walter Lippman

Non evaluative atmosphere

This would necessitate a right atmosphere for profile development. Treffinger (1984) urges on the need for a non-evaluative atmosphere for the young children as a critical factor to development of creativity. He calls for avoiding ‘the right answer fixation’ syndrome from the classroom environment.

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A case against rewards

It is also observed that the practice of awards and rewards often act as negative inputs to development of creativity. Focus on rewards often distorts the finer objectives of the thought process and leads to a significant drop in the ideational fluency.

Atmosphere for creativity

Creativity happens when the mind is usually in a stable and calm state. Joshua Freedman observes in his article “Creativity for Emotional intelligence: Ideas and Activities” – “When we most need creativity; we tend to be in an emotional state where creativity is least accessible. Fear and distress activate the limbic system at the base of our brains. This shuts off the cerebral cortex, where creativity and problem-solving live. Love is the antidote to fear and the wellspring of creativity.”

He adds “Creativity requires informality because its essence is “breaking rules.” The result is that creativity is sometimes tied to strong emotions which both give it power and make it challenging.”

Focusing on the need for developing the inner strength which could usher creativity in classrooms, Reggio Emilia a specialist in early school education in Italy comments: “What appears to be important is to teach “what is inside” and “how things work”

Significant contributors to creative environment:

Edward and Heiler (1993) identifying some basic parameters that manifest creativity list the following as significant contributors to the development of an ambience for creativity:

1. Developmentally capable of classroom experiences which call for higher level thinking skills, including analysis, synthesis and evaluation
2. Need to express ideas and messages – form mental images – integration across formats including words, gestures, drawings, paintings, construction, music, play etc.,
3. Through sharing and gaining other perspectives move to new levels of awareness

4. Learn through meaningful activities – Open ended discussions and long term activities – development of interrelationship between things
5. Need for integration of curriculum
6. In depth-exploration

Snowflake model developed by David Perkins of Harvard University identifies the following attributes as the traits of creative persons:

1. Strong commitment to personal aesthetic
2. Ability to excel in finding problems
3. Mental mobility
4. Willingness to take risks
5. Objectivity
6. Inner motivation

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Creativity `16

Learning is a joyful activity. It starts at the womb. Knowledge is an output of a learning process and not the end of it. Learning continues through out life. Creativity is genetically linked to learning as both have a common denominator of curiosity. No effective learning takes place without curiosity and no creativity is possible in a mind which is not curious. Previous knowledge is often a facilitator as well as a threat to creativity. It is a facilitator to the extent that it makes us understand that one doesn't have to reinvent a wheel. It is a threat when it assumes the role of a conditioner of mind. It is important how we teach children to handle the previous knowledge.

Most often parents use previous knowledge and related experiences to create a psychic threat or fear in the minds of the children to provide them a safe and secure environment. Such usages have a limiting value. Knowledge has to be used for progressive empowerment rather than as a deterrent. This would help the children to unleash their creativity.

The classical theory of Pavlov has been extensively used in classrooms for conditioning of mind through creating repeated stimuli-response systems. This might help in training the mind but not in ushering the creative faculties. As learning happens from birth onwards informally, children do come to school with some previous learning experiences. Sometimes schools have to create an environment for unlearning some of the established structures so that the child is having a positive repository of experience to continue further learning.

School entrance behaviours

Torrence, E.Paul and Kathy Goff in their book *Fostering Academic creativity in gifted students* observe "Young children are naturally curious. They wonder about people and the world. By the time they enter preschool, they already have a variety of learning skills acquired."

Some of the skills identified in children entering a pre-school are:

- Questioning
- Inquiring
- Searching
- Manipulating

- Experimenting
- Playing

Some of the behavioral patterns of such children are:

- Watching from a distance
- Taking a close look
- Touching and feeling
- Irresistible tendency to explore
- Vivid imagination

As early childhood activities are supported both by parents and teachers, they have to create a right environment both at home and at school for nurturing creativity.

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Creativity `17

How can parents help in nurturing creativity?

As most creative abilities are learnt informally, parents can facilitate the following at home:

- Singing
- Dancing
- Painting
- Story telling
- Playing

It is believed that humor is a strong facilitator of creativity. Therefore, parents can create many opportunities for the children to feel happy, relaxed and humorous.

Parents should also ensure that the following negative inputs are not present in the ambience provided to the children:

- Fear
- Threat
- Contempt
- Punishment
- Comparison
- Bullying
- Failure

Enabling environment should be provided at home for constructive relationships. All elements that would cause stress should be removed from the learning environment of the child.

Some of the following incidents at home de-motivate the child from creative pursuits:

- Serious differences between parents
- Comparison with siblings
- Inadequate economic support
- Conditioning thinking and behavior

How can teachers facilitate creativity?

Teachers should provide an enabling environment in the classroom for attainment of a creative atmosphere. The following things need to be kept in mind:

1. Children need Time

Teachers should understand that creativity is not a package that could be developed in a scheduled period of time. Creativity does not follow the clock. Children need freedom and their own time to follow their instincts. They need time to dream, time to conceive an idea, time to plan and time to execute. Structuring a time schedule would handicap the process of creativity. Hence teachers should provide the freedom of time to the learners to exhibit their latent potentials.

2. Creativity needs Space

You cannot cause creativity at a given place. It may not be possible for any child to think the way the teachers want them to think or to think in the way they are expected to think at a given place. The place and space are sometimes threat to a creative environment unless otherwise accepted by the child as conducive to them. A barren drab environment is not conducive to work.

That is why evaluating the creative indulgence of the child within the framework of a classroom in an informal mode is deemed as an incorrect mode of assessment of the profile of the learner. Teachers should understand that creativity does not happen within the four walls of the classroom. Nor does it necessarily happen within the precincts of the school building. (To be contd..)

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Teachers and creativity (contd..)

Creative children select their own materials

Provision of select materials need not subscribe to creative inputs. Textbooks, support materials, Lab materials, appliances, technological support systems are useful instruments. But they neither decide the creative profile of the learner, nor do they necessarily add any value. The materials for creativity are unique to every creative individual and depend on the space and time selected by the learner. Materials are used most productively and imaginatively by children when they themselves have helped to select, organize, sort and arrange. Hence an expensive and exhaustive infrastructure is not the only input to creativity, though it might provide extended opportunities for the same.

Provide the right climate

Creativity demands a fear and threat free climate. The creative individuals tend to experiment and most often fail in their experiments. They love to work in a climate where they can accept their mistakes without any remorse or regret and are in a position to convert their failures as steppingstones to further endeavours of discovery. The creative persons are always prone to risk taking and look forward to challenges with willingness and the climate in which they are working should facilitate such risks. They are always unique in their thought and actions. Quite often, their actions reflect their idiosyncrasies. The climate in which they work should help in accepting this uniqueness rather than marginalizing them for their uniqueness. The role of teachers in providing this climate is very important. They need to understand selectively the needs of each student in their class and provide appropriate climate to them than dwelling in certain commonalities.

Encourage provocative thinking

Very often the latent creative urge in the children manifests through their abilities to question, their capacity to differ, their abilities to perceive and experience through their senses, their unique insight and an encounter their nourish with their own inner world.

Given an atmosphere that empowers the above; the creative urge gets manifested powerfully and is exhibited. The role of the teachers is to encourage such provocative occasions wherein the children would seek answers for questions rather than get tamed through conditioned stimuli revealing monitored responses.

Encourage diversity

The teachers should understand that there is no one right way of doing a thing. This perception is quite relative and is anti-developmental. Ronald B. Standler in “his article on “ Creativity in Science and Engineering” (1998) observes “ My observation is that many instructors, from elementary school through undergraduate college courses have a standard, orthodox , only one right way” approach to the material. A student who does differently from the instructor is labeled wrong. I believe that such an approach is often the result of the limited intellectual ability of the instructor who only knows one reliable technique.” All creative works are manifestations of unique perceptions and the outcome of such persons who had displayed exemplary courage to differ and show to the world that there is more than one way of doing a thing. Encouraging diversity enhances aesthetic pursuits, entrepreneurial attitudes and provides platform for innovation.

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Constructivist curriculum

In the context of the above, it is relevant to focus on constructivist approach to curriculum where the learner is free to construct his learning and curricular structures depending on one's own aptitude and pace. This also facilitates multiple disciplines of learning cutting across barriers. Developed as a branch of cognitive psychology by Ornstein and Hunkins in 1998, it was regarded as a philosophy that cuts across multiple disciplines of learning by Brunner (1996)

The method concerns with how personal understanding or knowledge is formed. The focus of the method is on knowledge construction.

The salient features include:

- Viewing knowledge as content to be transmitted
- Knowledge is conceptualized as a cognitive state
- Knowledge is perceived as constructed meanings
- Knowledge is embraced as an adoption of a culture

The constructivist approach to learning is user-friendly and removes all roadblocks to creativity. Teachers would do well to understand the basic tenets of this branch of cognitive psychology.

What are the features of a constructivist classroom?

The characteristics of a constructivist classroom are:

- The students take responsibility of one's own learning
- Construct their own resources and knowledge
- Reconstruct and develop knowledge
- Share the constructs with other learners
- Develop conceptualization of the constructs

Thus, the paradigm of learning of a constructivist classroom shifts to the individual learner, his aptitudes, attitudes, environment and resources. It enhances the comfort level of learning and empowers the learner to be in continuous interaction with his learning environment.

What would the teachers do in a constructivist classroom?

The role of teachers in a constructivist classroom would focus on the following:

- ✦ They have a facilitative role rather than those of information dispensers
- ✦ They would help students understand their constructs
- ✦ Share their constructs with a larger community of experts

Defining a constructivist environment, Wilson (1996) observes:

“A place where learners may work together and support each other as they use a variety of tools and information resources in their guided pursuit of learning goals and problem-solving activities” (Wilson 1996)

There is an increasing opinion among global educators that a constructivist environment is more suited to the pursuit of creative faculties of the learners. It would be advisable if the teachers learn to use some of the major aspects of constructivist learning in their pedagogical pursuits to create an ambience for creativity

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