21st Century Education for Tribal Schools

Lessons from around the world in the field of education

Namaste to all leaders of Ekalavya Model Residential Schools!

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Points to ponder upon....

- **School: A nursery for the brave new world**
  - The evolving human needs & the new purpose of education
  - Holistic well-being: Mixture of tribal and modern wisdom
  - Special significance of a school in a tribal setup

- **School management: Formal, Informal and Deep Curriculum (based on research in the field of neuroscience and psychology)**
  - **Deep:** The long lasting impact of school on children
    - Empathy
    - Life-long learning and Growth Mindset
    - Multiple intelligences
  - **Informal:** A non-zero sum approach: From ‘me’ to ‘we’
    - Play for Peace
    - Happiness Index
    - Social Impact of Schools
  - **Formal:** Novel methods of learning and assessment
    - Jigyasa Map: A logical sequence of learning
    - Card games based learning and assessment
    - Synergy between science, arts, sports and society
School: Nursery for the brave new world

School is not a place where children just come and learn,

- It is the nursery for the entire civil society;
- A lab of the mind where the future citizens of the world are groomed with care and proper guidance
  - to carry forward the torch of human civilization.
The evolving human needs & the new purpose of education

- About 50 years ago the society needed trained people to work in factories and other manufacturing industries (Physiological and safety needs).
- Inter-personal skills became very important due to urbanization and globalization: being able to respect the diversity of thoughts, beliefs, tastes and opinions of others (Belongingness & Esteem).
- About 20 years ago the society needed many professionals who had good STEM and IT skills, other fields of arts, sports, medicine and commerce also started flourishing (Cognitive and aesthetics).
- Now the society needs people who are good at learning new things, those who have learnt the skill of learning, develop a rational sense of morality, can predict the direction of society’s progress and bring positive change (Self Actualization and Self-Transcendence).
- Where is the role of educators? EVERYWHERE! For holistic human and societal development.


Image 1) http://www.relatably.com/q/abraham-maslow-quotes
Holistic well-being: Marriage between tribal and modern wisdom

Advantages and disadvantages in a modern & technologically advanced society

✔ Improvement in life span with modern medicines and vaccines to cure incurable diseases
✔ Food and other resources production increased to sustain larger population
✔ Modern information technology connects us more and even enable us to learn at an exponential rate, and even explore nearby planets for habitation!
✔ Creation of a more liberal global society where cultural differences are acceptable and even celebrated
✗ Over consumption of natural resources and increase in human greed leading to greater inequality
✗ Complete damage to natural environment due to industrialization, pollution of natural resources, possible mass extinction of species due to climate change caused by global warming and deforestation
✗ Unhealthy lifestyle diseases due to our dependence on comfort and mindless consumerism, mental health issues and large scale crime and wars

Image 1) https://www.pinterest.com/pin/278660295670563029/
Image 2) https://steemit.com/steemstem/@josealbertomg71/the-importance-of-chemistry-in-our-daily-lives
Advantages and disadvantages in a nature-connected tribal society

✔ Living in harmony with nature and experiential knowledge of local plants, animals, and seasons
✔ Organic source of unadulterated food, fresh air, and clean water
✔ Healthy lifestyle due to regular physical activity and continuous movement in a clean pollution-free environment
✔ A rich culture of interconnectedness with fellow humans, celebrating life by being happy and content
✗ Out of touch with the modern advances in medicines hence not able to find cure to some preventable diseases
✗ Under constant threat of being overpowered by industrial lobbies and natural calamities, difficult for them to garner support from rest of the society due to cultural isolation
✗ Fish in a pond syndrome: Rigid social order, lack of openness to change and hence their children might have lesser opportunities for self and other world exploration, interests, hobbies or job occupations

Image 1) https://www.pinterest.com/pin/161425967867673329/
Image 2) https://www.tripoto.com/india/trips/wanna-experience-different-extravagant-cultures-7-tribal-festivals-in-india-that-guarantee-more-430277
Holistic well-being: Marriage between tribal and modern wisdom

- Living in harmony with nature and gain experiential wisdom (+) modern information technology for rapid learning and global connectivity
- Advanced resource production increased to sustain larger population (+) organic source of unadulterated food, fresh air and clean water
- Healthy lifestyle due to regular physical activity in a clean pollution-free environment (+) modern medicines and vaccines to cure incurable diseases
- Creation of a more liberal global society where cultural differences are celebrated (+) a rich culture of interconnectedness with fellow living beings, celebrating life by being happy and content

Aim of holistic education: WIN - WIN - WIN situation!

Synergy of tribal and modern wisdom: Real life examples

Madhumala finished her report by saying, "Never ever in my six years of doing research alone with the tribes of Andamans did any man ever misbehave with me. The tribes might be primitive in their technological achievements but socially they are far ahead of us."

(Anthropologist Madhumala Chattopadhyay is one of a few people who managed to have friendly contact with the Sentinelese of Andaman in 1991)

EBHLE: Experience Based Holistic Learning Environment (Sapna Ranch)

Mr. Hasmukh Sapnawala, on returning from USA, at the age of 50 in 2010, started this project near Mandangad where the best of modernity integrates with the natural simplicity. It's modern tribal community where children of all ages can come, learn & have lots of fun!

- Wi-Fi, Projector and Library
- Gas stove and Fridge
- Geothermal Air Conditioner
- Solar water heater and PV panels
- Complete waste segregation
- Huge bamboo architecture
- Food forest

Image 1) https://ozzyman.com/this-woman-met-the-sentinelese-lived-to-tell-the-tale/
Image 2) http://ebhle.org/
Special significance of a school in a tribal setup:
The internet and cultural hotspot of the tribal community

462 Eklavya schools to be ready for 20,000 tribal people across India by 2022, Centre gives approval: A significant educational intervention

- Schools act as portal of exchange between the community and rest of the world, and bring economic benefits to the community by showcasing their innate talent: Tribal Art and Sport Festivals
- Schools can invite people from various backgrounds like doctors, educators, scientists, sportspersons, administrators, artists, social workers etc, provide a safe space for interaction and knowledge sharing with the rest of the community
- Educational bodies can teach us how to blend well with the tribal background & values of their lifestyle
- Tribal education: Not restricted to only learning but should evoke responsibility towards entire community to safeguard their rights as responsible first generation learners

Image 2) http://www.iamwire.com/2017/06/healthcare-entrepreneurs-india-opportunities/154206
### Planned Curriculum (Intended)
- Formal curriculum focuses on goals, objectives, subject matter, and organisation of instruction.

### Enacted Curriculum (Unplanned)
- Informal curriculum deals with sociopsychological interaction among students and teachers, especially their feelings, attitudes and behaviours.

### Hidden Curriculum (Unintended)
- The part of the curriculum that, while not written, will certainly be learned by students.

"When people speak of 'the school curriculum'... they include not only the available subject curricular but also all the other educational encounters -- relating to personal relationships, moral attitudes, social habits and so forth -- offered by the school. In this sense, in fact, the curriculum is as wide as the entire set of chosen activities by which the school seeks to achieve its educating purposes..."

(Becher & Maclure, 1978)

[Image 1 & 2](https://www.slideshare.net/YeeBeeChoo/topic-1-concepts-and-issues-in-curriculum-63221504)
Deep Curriculum: The long lasting impact of school

Deep curriculum might seem hidden, but to the heart of the child, it is the most obvious. A small thought experiment,

- When you look back at your own school days, what do you remember? What emotional feelings generates within you?
- Do you remember joyful moments, smiles and happiness? Or a sense of being ignored, irrelevant, or worse bullied & silenced?
- Were you enjoying the learning sessions? Or waiting for the periods to end? Did it leave you with thirst for more knowledge or you got exhausted with all the studies?
- Do you remember your teachers fondly? Did the school make you feel loved and wanted?
- Did the teachers expected from you to simply obey the orders or did they take effort to explain the consequences and help understand the importance of certain rules and regulations?
- **Deep curriculum is an abstract emotional learning of the entirety of the schooling experience. It cannot be quantified.**

Image 1) [https://blogs.shu.ac.uk/learningspaces/2017/08/14/spaces-for-engagement/](https://blogs.shu.ac.uk/learningspaces/2017/08/14/spaces-for-engagement/)
Getting deeper into Deep Curriculum: Neuroscience of Empathy

Mirror Neurons and imitation learning as the driving force behind "the great leap forward" in human evolution (Vilayanur Ramachandran, Neuroscientist)

We are hard-wired for empathy, whether we like it or not.

Lofty questions about the mind are fascinating to ask, philosophers have been asking them for three millennia both in India where I am from and here in the West - but it is only in the brain that we can eventually hope to find the answers. - Vilayanur S. Ramachandran

Mirror neurons can be defined as a group of neurons that activate when we perform an action or when we see an action being performed. They allow us to learn through imitation. They enable us to reflect body language, facial expressions, and emotions and are key for the child development, as well as relationships and education.

Image 3) https://www.verywellhealth.com/mirror-neurons-2488711
1) **Show happiness and optimism** and that way you will transmit that to your students and children.

2) **Control and avoid negative emotions.** We all have bad days but teachers have to be sure this doesn’t reflect on the children. However, the tricky part is that this doesn’t mean children should repress these emotions. **As a teacher be sure to detect what emotion the child is feeling and help them learn to identify and manage them accordingly.**

3) **Use visual signs and imitation** any chance you get. Make examples practical with physical demonstrations so that children can imitate you.

4) **Encourage group interactions.** This will maximize the use of mirror neurons and therefore the child’s social relationships and empathy.

5) **Stay away from violence. Children learn what they see.** If a child is educated in a hostile environment, his mirror neurons will activate and he might repeat these violent behaviors.

6) **Teach children the importance of how we listen, particularly body language.** That way when someone has to share something or needs help the mirror neurons will activate and empathy will be reinforced.

7) **Teach children about emotional intelligence** so that they can be able to identify their own and other people’s emotions.

**Taking the hidden curriculum into account means trying to be the best role model for our students and letting them know that we expect them to behave accordingly.**
Deep Curriculum: Empathy empowered education

- **Increase in pro-social behaviour**: Including helpfulness, sharing, and willingness to include other students in games and groups
- **Improved school performance**: Students arrive in class more ready to learn. By spending less time on discipline, teachers have more time to teach, leading to increases in overall school performance
- **Safer Schools & Connectedness**: The strongest protective factor for both boys and girls to decrease substance abuses, early sexual initiation, violence, and risk of unintentional injury, and in safeguarding kids from emotional distress
- **Decrease in aggression & disciplinary actions**: Reductions in the number of disciplinary referrals across grade levels
- **Less bullying and eve-teasing**: In a recent Stanford University study, it was found that teachers in Playworks schools reported less bullying and exclusionary behavior during recess than teachers in control schools.
- **Lower absenteeism among students**: Each day, 160,000 students across the country (USA) miss school for fear of being bullied. Absenteeism is further compounded by a lack of belonging, and a feeling among students that no one knows or cares that they miss school. Equipping teachers with empathy in order to teach the whole child is proven to reduce absenteeism: a fact that’s been confirmed in study after study.

Evidences of effectiveness of empathy curriculum in school management from studies in USA

Image 1 & 2) https://startempathy.org/resources/
Deep Curriculum Empathy Toolkit: The art of our heart

To teach empathy, practice empathy. View children's actions as efforts to connect and belong. Listen to their ideas. Ask them questions. Recognize that they walk through the door as full human beings. Act with a belief that young people have as much to teach us about empathy as we do them. Find the truth in what Azaleigha, an 8-year-old Opal School student, said: “Empathy is your heart’s art.”

Matt Karlsen, Opal School, Portland OR

A Roadmap for Promoting Empathy in Schools:

**Step 1. Prepare**
- Create a Safe Space
- Develop Emotional Competency
- Lead by Example

**Step 2. Engage**
- Group Play
- Storytelling
- Immersion
- Collective Problem-Solving

**Step 3. Reflect & Act**
- Identify Shared Values and Differences
- Instill Courage
- Enable Action

Deep Curriculum: Empathy towards the Educators
Successful educational management models around the world

- Common features of education system in Singapore, Japan, South Korea, Canada, Finland, Norway, Sweden and Germany:
  - Teachers are highly respected and paid well
  - Free public education for all (>98 % Literacy)
  - Trusted with freedom to design the assessment methods and curriculum
  - Regular teacher training and enhancement
  - Adult education is equally emphasized
  - Flexible opportunities to switch between formal college and vocational training after schools
  - Large allocation of funds for education sector
  - Strict anti-corruption measures

Source: [https://worldpopulationreview.com/countries/education-rankings-by-country/](https://worldpopulationreview.com/countries/education-rankings-by-country/)
Image 1) [https://www.pinterest.com/pin/425027283568564284/](https://www.pinterest.com/pin/425027283568564284/)
Deep Curriculum: Life-long learning & Growth Mindset

Neuroplasticity

The ever growing field of neuroscience

Image 2) https://me.me/i/a-girl-who-had-half-of-her-brain-removed-at-b6e58097077e4467be91b046dedbe760
Image 3) https://blog.myneurogym.com/neuroplasticity-train-your-brain-for-success
“We are in the early stages of a **Brain Plasticity Revolution**. That revolution begins with a clearer understanding that the brain's machinery is being continually rewired and functionally revised, substantially under your control, throughout the course of your natural life. You have a remarkable built-in ability to strengthen and grow the person that you are, at any age.” - Norman Doidge, M.D. (The Brain That Changes Itself: Stories of Personal Triumph from the Frontiers of Brain Science)

- **In the previous decade**, most scientists believed that the adult brain was hard-wired and set in its ways. But, as it turns out, this is **not true**. Neuroplasticity is a super power you possess and can use to shape your reality. Pretty awesome, right?

- Neuroplasticity is an ongoing phenomenon; it's **happening every moment of the day** whether you understand it or not. However, you can tap into the genius part of your brain and consciously choose to use neuroplasticity to your advantage.

- Your brain is capable of positive change and growth. **No matter how old you are**, you can learn, you can improve, you can sharpen your skills and live a healthier, meaningful, wealthier, and happier life.

**Image and source:** [https://blog.myneurogym.com/neuroplasticity-train-your-brain-for-success](https://blog.myneurogym.com/neuroplasticity-train-your-brain-for-success)
Deep Curriculum: For the mind and heart - Mindfulness and Happiness

Neuroplasticity in action: Mindfulness Meditation
Mindfulness meditation based on Neuroscience

Almost all our suffering is the product of our thoughts. We spend nearly every moment of our lives lost in thought, and hostage to the character of those thoughts. You can break this spell, but it takes training just like it takes training to defend yourself against a physical assault.
Sam Harris

Neuroplasticity in action: Delhi Education Revolution
Happiness Curriculum in Delhi State Govt. schools

Discover your mind.
Waking Up App is a guide to understanding the mind, for the purpose of living a more balanced and fulfilling life.
Sam Harris—neuroscientist, philosopher, and New York Times best-selling author explores the practice of meditation and examines the theory behind it.

Source: Mindfulness meditation https://wakingup.com/
Source: Happiness Curriculum
Informal Curriculum: A non-zero sum approach
From ‘Me, Myself and I’ to ‘We, Ourselves and Us’

Competitive approach between students might bring out some bright students, but at the cost of many who lose out to competition. The winners do not learn about teamwork. Collaborative approach is for ensuring each and every student attain level of mastery, no one shall be left behind and everyone learns more!

Image 2) https://www.edufe.org/cha-ha-dau-ya-ma-tki-fod/
Informal Curriculum: A non-zero sum approach
Nurturing a responsive and responsible classroom

- **Nurturing Responsibility:**
  - Student representatives as part of school management team
  - Group responsibility: All should pass or no one clears!
  - Group teaching tools development: Students make their own teaching tools for different subjects and reach out to younger students
  - Making students in-charge of school activities like in Japan: Cooking, cleaning, growing edible plants etc.
  - Taking help of students for doing assessments, added self assessments.

- **Nurturing Responsiveness:**
  - A sign language as a checkpoint for learning: Thumbs up, thumbs down or doubt.
  - Encouraging children to ask questions and doubts, rewarding them for asking!
  - Making them overcome fear of failure or mistake, radical acceptance!
  - Ensuring safe atmosphere where students can open up, not ridiculed by their peers
  - Offering different modes of responsiveness: Writing, speaking, drawing etc
Informal Curriculum: Multiple Intelligences - More the merrier!

Multiple Intelligences Theory states that each individual has some core inclination to one or the other mode of learning and activity.

With practice one can nurture all modes of smartness, but each will have their own preferences.

Ideal for talent spotting and career-guidance.
Informal Curriculum: Play for Peace! Khel se Mel

Faculty: Agyat & Javed
Certified Trainers
Play for Peace

For Teachers, Educators, Trainers, Facilitators, Social workers or Anyone interested in using play activities for team building, building peace, conflict resolution, creating safe spaces and inclusive communities.

Contact: 9603473470

Play for Peace training by Nikhil Mehta

Co-operation
सहयोग, राहसंघita
Co-operation
Inclusion
सब शामिल
Role-modelling
आदर्श बनें
Safety (PIES) सुरक्षा
Funn मज़ा

Come lets Celebrate
Dr Ambedkar Jayanti
with
Play for Peace
at Fun and Learn Centre, Turbhe

एक ऐसी दुनिया जहाँ डर न हो,
बलियाँ करने का मैदान हसी पर,
असर न हो,
सीखना सजना न हो.
**Formal Curriculum:** Synergy between science, arts, sports and society

Simultaneous activation of different brain areas to make learning more memorable, effective and enjoyable!

“To develop a complete mind: study the science of art; study the art of science. Learn how to see. Realize that everything connects to everything else.” — Leonardo da Vinci
Formal Curriculum: Synergy between chemistry and dance

The SOLIDS, LIQUIDS and GASES that we see or feel have a unique property called as MASS and hence known as different states of MATTER. The states are transformed by increasing a certain parameter known as TEMPERATURE which is the measurement of the degree of movement of the basic building blocks of 'MATTER', the 'ATOMS'.

https://asanvigyan.in/jigyasa-map-2-hanging-around-with-all-that-matters/
**Formal Curriculum: Synergy of Chemistry and English**

***Chemical Word Search #1*** Identify the first ten elements of the period table in the puzzle given below.

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www.asanvigyan.in

https://asanvigyan.in/2019/10/12/science-word-search-1-find-the-first-10-elements/
**Formal Curriculum:** Chemistry and Colour-filling

Periodic table of elements: Fill in the electron blanks

- Fill in the holes with electrons (-)
- Fill electrons (-) from inner circle to outer circle
- Number of electrons filled = Number of protons (+) in the center

![Periodic Table Image](https://asanvigyan.in/2018/04/12/periodic-table-of-elements-fill-up-the-electrons/)
Physics as an adventure map

Jigyasa Map of Multi-dimensions - 1
Classical Mechanics: Old is still gold in this new world

Start Here!
What is the smallest mark you can make, on the nail? A sharp nail? An blunt nail? And why?

Dimensions of Numbers

Length (1D)
Distance/Displacement

Area (2D)

Volume (3D)

Time

Mass

Density

Frequency

Moment of Inertia

Angular Displacement

Speed/Velocity

Angular Velocity

Angular Displacement

Momentum

Angular Acceleration

Force

Torque

Congrats!
You may proceed to the next map...

Follow logical sequence of learning: https://asanvigyan.in/2019/06/22/904/
Card games based method for learning chemistry

https://asanvigyan.in/2020/03/07/asan-vigyan-science-education-journal-1/
Democratic Relevance of School and Education and powerful role of a teacher

In his letter to his wife, Savita, he lamented that “there are many old friends who have gathered around me and [are] helping me in all sorts of ways. I was looking forward to meeting Prof Dewey. But he died on the 2nd when our plane was in Rome. I am so sorry. I owe all my intellectual life to him. He was a wonderful man.” - (Ambedkar on Dewey)

https://asanvigyan.in/2019/06/30/educate-agitate-organize-learning-about-education-from-ambedkar-dewey-duo/
Thank You !!!

Reference Resources:

- Coursera Online: Foundations of Teaching and Learning [https://www.coursera.org/learn/teaching](https://www.coursera.org/learn/teaching)

- Experiential Based Holistic Learning Environment – Modern eco-tribe in Sapna Ranch, near Mandangad, MH ([www.ebhle.org](http://www.ebhle.org)) - Mr Hasmukh Sapnawala (9552689001)


- Deep Curriculum: Mindfulness meditation [https://wakingup.com/](https://wakingup.com/)

- Informal – Play for Peace Sessions for promoting compassion and reducing conflict [https://playforpeace.org/](https://playforpeace.org/) : Contact Person: Nikhil Gulab Mehta (9819144061)