People in Conservation

Biodiversity Conservation and Livelihood Security

Volume 13 Issue 1 March - August 2024

Index

Special Issue on Education

Opening Words

A few years ago, I signed up for a co-learning course on life design. One of the tasks for 'homework' for the course was to take an Intelligence test to evaluate the level of intelligence across 8 key areas of one's competencies (cognitive, spatial, musical, logical and so on). That's the first time that I stopped to consider that there could be more than one form of intelligence, the one emphasized on during our entire school life.

During school, I would see some of my peers struggle with comprehension of complex topics that were taught using only a blackboard and where the efficiency of the teachers depended on how well the they could use their verbal explanation skills. Some students would really not be able to follow a consistent schedule and in general a functional relationship with all the paraphernalia of the education system. I was on the wrong side of history as I too would resonate with the teachers' angst against these 'rebellious, mischief-mongering' delinquent students who refused to just 'work harder' to accomplish at least some level of academic mediocrity, let alone excellence.

Over the years, my irritation turned to immense empathy and second-hand guilt as I realized the pain of what these peers must have been going through trying to fix themselves in a broken system; where they had to fit into a mould of unilateral definition of intelligence, where they were denied an acknowledgement of their unique gifts that were of as much importance to be able to live a full life.

This begged questioning at multiple levels: what are the metrics of academic success? What are the teaching methods/approaches? What is the remedial process in place for struggling students? And lastly (or firstly!) what do we understand by 'education'?

And it is imperative to ask these questions as those at stake are tender, impressionable children whose lives will be determined by their early engagements with an education system that is far from perfect; And the impact of which is felt on a cross-section of life situations that go much beyond learning and education; it encompasses health - mental, physical, emotional, spiritual; individual autonomy (what, how, when, under what circumstances one learns), power (over one's life design), relationship with environment , future possibilities of dignified livelihoods, and so on.

There is now enough critique available of the mainstream education system; its vices and all. There is consensus among many radical and sensitive scholars, educators, thinkers, and activists that an outdated colonial system of education which was designed to serve the goals of creating an obedient subject "race" and a servile working class needs to be thrown into the dustbins of history where it rightly belongs. We need a system that decolonizes and frees the young minds of the student so that they can grow and flourish as responsible and autonomous citizens and human beings in an atmosphere of freedom and enquiry.

This edition of the newsletter is curated in an attempt to lay the ground for inquiry and exploration of various forms of education, to take inspiration from stories around the country that show us all the nooks and crannies in which learning can happen and how intricately education, well-being and social justice are linked.

*The interview piece **Tinkering with Our Learning - A Conversation with Learning Facilitator Mihir Pathak** lays down the foundation of what encompasses well-being in a learning context for children through the modality called tinkering. Post-pandemic, the emphasis on nature learning has been prevalent and **Uncovering the Potential of Nature Learning at Home** captures the importance of learning by being in tune with our immediate surroundings. This reasoning is substantiated by the piece **How Teachers Can Use Nature and Human Beings as Teaching-Learning Materials (TLMs)** which emphasizes on the environment's contribution in early developmental stages of children. A very crucial piece missing in the educational discourse is the fostering of a community which by design is against the competitive environment in our schools. It is becoming extremely evident that it does take a village to raise a child and that child is entitled to have an education that enables a more holistic, well-rounded, resilient approach to life. And this is illustrated well when one reads **Lessons India Should Learn from Odisha's Leprosy Colony on Using Public Spaces to Fight Stigma.***

A deep dive into alternative learning spaces and modalities is an ongoing inquiry in many small pockets including communities of homeschoolers, un-schoolers, Waldorf, etc. Yet, the plaguing question is of accessibility as not all of these alternative modalities are affordable or even pragmatic for the most marginalised communities whose sole focus is to use the only working(?) education system available to them that can guarantee their survival. And still, there are glimmers of hope that can be found in the relentless work being done by educators, activists or artivists who believe in dismantling the system one peg at a time.

Arnaz

1. News and Information

Uncovering the Potential of Nature Learning at Home

By Roshni Ravi and Vena Kapoor

Since 2018 the Nature Classrooms project has been working closely with schools and educators to connect learning to the natural world. They develop user-friendly nature learning resources that are age appropriate, locally and culturally relevant and encourage children to engage with nature through hands-on and inquiry-based learning. These resources correspond to existing primary school Environmental Studies (EVS) curricula and can be integrated into classroom teaching. In addition, we conduct capacity building workshops for school teachers and educators across different organisations.

In the summer of 2020, when the pandemic was making its way through the world, like everyone else our team at Nature

Classrooms too were deeply impacted. Like many working with school communities, we worried about how students, teachers and parents would cope. We had apprehensions about how young children would make meaning of the uncertainty of everything that was unfolding. And finally, we also worried about how we would continue work.

Our work of connecting learning to the natural world across different schools and organisations involved meeting teachers, making lesson plans together, facilitating outdoor-based nature immersion workshops for teachers and so much more that we couldn't imagine doing remotely or online.

We always knew and believed that one didn't have to go far to connect with and experience the wonders of nature. The lockdown forced us to think about how children and adults could continue to engage with and take solace in the natural world as they stayed safe at home.

Out of this, was born a series of simple interventions, processes, activities and games, one of them being an activity that we called - 'Hidden Housemates'.

Nature Connections at Home

Hidden Housemates Bingos are a series of activity sheets (available in English, Kannada and Hindi) that encourage us to explore our surroundings and look for nature beings, images, sounds, smells and textures in and around our homes. The bingo sheets are a way to go on a 'nature' walk inside our own homes, spaces and discover surprises in different nooks and crannies.

Teachers from the Fig Tree Learning Centre in Silvepura told us about a student who found a way to connect with spiders in their home - first through the bingo and then by using the activity prompt to imagine themselves as spiders. "Imagine if you had 8 eyes, 8 legs like a spider. How would your life change? Make a drawing or make a story." the prompt said.

We share with you one of the stories by a middle school student (originally in Kannada):

If I were a spider...

"I am a spider, when I am outside I build webs on a tree and inside the house I build webs in corners. I have 8 legs and each leg has small hair all over. The colours on my body are blue, pink, brown and black. One lady moved me with a broom while cleaning and I had to go outside and sit on a branch, creeper. Sunlight fell on my body and I felt happy so I stayed there, in the evening when the clouds turned black, the clouds made noise 'dum dum'. I felt very scared because when I was inside the house, I had not heard this noise.

Suddenly, it started raining and my body got wet and I got a cold! I was shivering and went back to where I was inside the house, built a web and slept comfortably."

In the emerging context of restricted movement as a result of the pandemic and increasing time that students and grown- ups spend at home it is crucial to explore different ways in which we can continue to explore and stay connected to our surroundings.

One way is to experience and see with fresh eyes the spaces and surroundings we've been occupying. It is amazing how much one can discover with each walk in and around one's home, just like the student who wrote about spiders with such empathy. We share our homes with many creatures and plants and noticing them with more focussed attention can help us learn and grow in new ways.

Read more here: https://images.assettype.com/ncfindia/2021-12/9e34c3a5-da86-455e-b0ee-b692f973434e/Learning_Begins_at_Home_Samuhik_Pahal__Vol_2_Issue_1.pdf

✦✦

2. Perspectives

Tinkering with Our Learning - A Conversation with Learning Facilitator Mihir Pathak

By Arnaz Khan

Unstructured Studio is a not-for-profit organization developing learning technologies, activities, and resources to foster a tinkering mindset. They engage children from under-resourced communities in STEM-rich tinkering experiences and empower them to become creative and responsible problem solvers of the future. Their work is inspired by Mitchel Resnick's four guiding principles (4P's) of Creative Learning: Projects, Peers, Passion, and Play and based on research at MIT Media Lab's Lifelong Kindergarten.

Mihir Pathak is a project-based learning facilitator based in Gujarat, India. A self-designed learner & passionate educator, Mihir has been working with children and young adults from diverse socio-economic backgrounds for the last 7 years. A facilitator at Unstructured Studio and founder of LearningWala Studio, he designs and facilitates unconventional learning experiences immersed in Projects, Passion, Peers, and Play. Mihir calls himself a children's certified storyteller.

Read below our conversation with Mihir around tinkering, its relevance in kids' growth, and educators' role in facilitating it:

Tell me a little bit about your background and how did you stumble upon Unstructured Studio? What about tinkering resonated with you?

I have been working with kids for the past six to seven years, focusing on project-based and experiential learning and simultaneously following the work of the Lifelong Kindergarten research group at the MIT Media Lab. Srishti Sethi (one of the co-founders of Unstructured Studio) has done her master's from the same research group, and at the time of the first lockdown, I saw her organization-related post on social media. I immediately reached out to her and expressed interest in working together on tinkering projects. Since June of 2020, I have been working at Unstructured Studio as a Learning Facilitator. In this role, I work with children and engage them in tinkering and creative learning activities remotely via WhatsApp and other communication mediums. I also help build connections with local schools and educational organizations and involve them in our programs. For example, we organize teacher training workshops to equip them with the necessary skills to facilitate tinkering in a classroom or after-school setting. My role as a learning facilitator is flexible and broad, and it also includes me in the organization's strategic thinking, brainstorming, and questioning.

What is tinkering? How is it different from other modes of learning steeped in science-based activities?

Tinkering is about playfulness, hands-on experiences, and experimentation with physical materials. It is about spending "unstructured" time without any rules or constraints with the materials. You first discover something, then play or interact with it, and as a result, lead to a completely different outcome than expected. Sometimes, it can also lead to inventions that offer solutions to real-life issues. Tinkering is an open-ended process; there is no final discovery or outcome; it is constantly evolving. And, the final product could be anything from a technological device to an artistic masterpiece. Tinkering is not just science–writing a story also involves tinkering with words and ideas. Tinkering helps develop soft skills such as creativity, critical thinking, communication, and collaboration; these are 4C skills, considered the essential skills of the 21st century.

How can educators support tinkering in a classroom setting?

Tinkering can be used as a tool and a medium to enhance soft skills. In addition, it can help open up one's mind to explore different possibilities. What sets tinkering apart is that it draws from the body's wisdom (using our five sensory organs), unlike the traditional education system that primarily focuses on the brain and cognition. Young kids from preschool to the 4th grade are able to learn better as they experience the world with their five senses at that age. Only focus on "cognition" could be limiting and may shut them out from other forms of learning experiences. As educators, it becomes our responsibility to engage students in using their heads, hands, and heart to enable their best learning. It could be through simple materials such as wood, paper, cardboard, natural colors (turmeric powder, soil, flowers, etc.), sounds, light, etc. But, what is critical here is to pose questions to help students reflect on their process, learn from their mistakes, and find their answers. For example, in the Vichitra Yantra activity that focuses on the concept of gear, instead of theoretical teaching or even audio-visual learning aid, children learn how to make it themselves with tinkering. That gives foolproof clarity to those who wish to understand the working and applications of

a gear. Tinkering's fundamental philosophy is based on creating whole and complete individuals who are aware, conscious of their thinking processes, and can empathize with others.

Could you share some tips and techniques for educators facilitating or designing for tinkering?

Facilitation is a loaded word. It determines the direction of a conversation or an activity. Facilitators must be careful not to dump their ideologies, prejudices, and beliefs onto the students or lead them toward particular ideas or outcomes. Instead, they should empower them to derive for themselves. The facilitator can set the broad theme for the tinkering activity or project. For example, while working on a light-related activity, they can begin by showing examples of kaleidoscopes, butter paper as a light diffuser to arouse curiosity among the students and lead them to a WOW moment. The goal is to inspire and not influence. Upon being asked questions, the facilitator can guide them, ask counter questions that trigger the student's thought process and empower them to find their way through the challenges.

Could you take us through the tinkering process at Unstructured Studio?

Currently, all tinkering workshops and facilitation happen virtually. There is a project guide with tips and tricks in written format and audio notes for facilitating tinkering. These tips help set the context for the project. We kick-off an activity by showing a demo and asking questions such as: Where have you seen this demo before? What is its use?, Can you relate this concept with a real-life phenomenon? We also provide a demo video explaining the process. The facilitators and the kids are connected via WhatsApp; the social messaging app. The kids ask their questions in the group, facilitators ask counter-questions, and avoid giving straight and readymade answers. We follow a week-long process where the kids explore the activity, create their prototype, and share it with the group for feedback. After several iterations, they upload the finished project on the studio's website: ZubHub (which is like YouTube for tinkerers).

What is your favorite tinkering story?

I have a background in arts and humanities. I create short films along with kids, do drama, and make things with cardboard. I am on an ongoing journey. When I see kids tinkering, I go through a lot of emotional churning too.

Once, we were doing a project for kids in Kutch, a desert region in Gujarat. As part of the tinkering project, we asked kids to make natural colors. Now, you can imagine that an adult would've been in a fix, not knowing how to procure the raw materials in a scarce land. But not the kids–they managed to find flowers and boil them in metal pots on firewood. The example video had a particular process, but the kids adapted to their current context and made the project possible. They showed great adaptability and a problem-solving mindset. The beauty of working with kids on open-ended activities without fixed outcomes brings impressive results. We have a practice of encouraging children to name their tinkering projects. In another incident, we were making a box-type machine. A brother-sister duo, Om and Nirja, made a box and called it "Om-Nirja Ghumakkad Chakkar," isn't it such an appealing name?

The seed of learning is there in children already; we need to "just" nurture it through facilitation so that learning can start budding and children can grow. And, children with communication, collaboration, creativity, and critical thinking skills will grow up to become adults who strive

for harmony. Overall, I believe that tinkering can help cultivate peace and harmony in our society and the world.

Source: https://unstructured.studio/blog/a-conversation-on-tinkering-with-learning-facilitator-mihir-pathak/

How Teachers Can Use Nature and Human Beings as Teaching-Learning Materials (TLMs)

By Kamala V Mukunda

Kamala V Mukunda writes that children are designed to learn from real-world environments. This structures children's interactions with both nature and other people and helps go beyond their spontaneous, playful interactions.

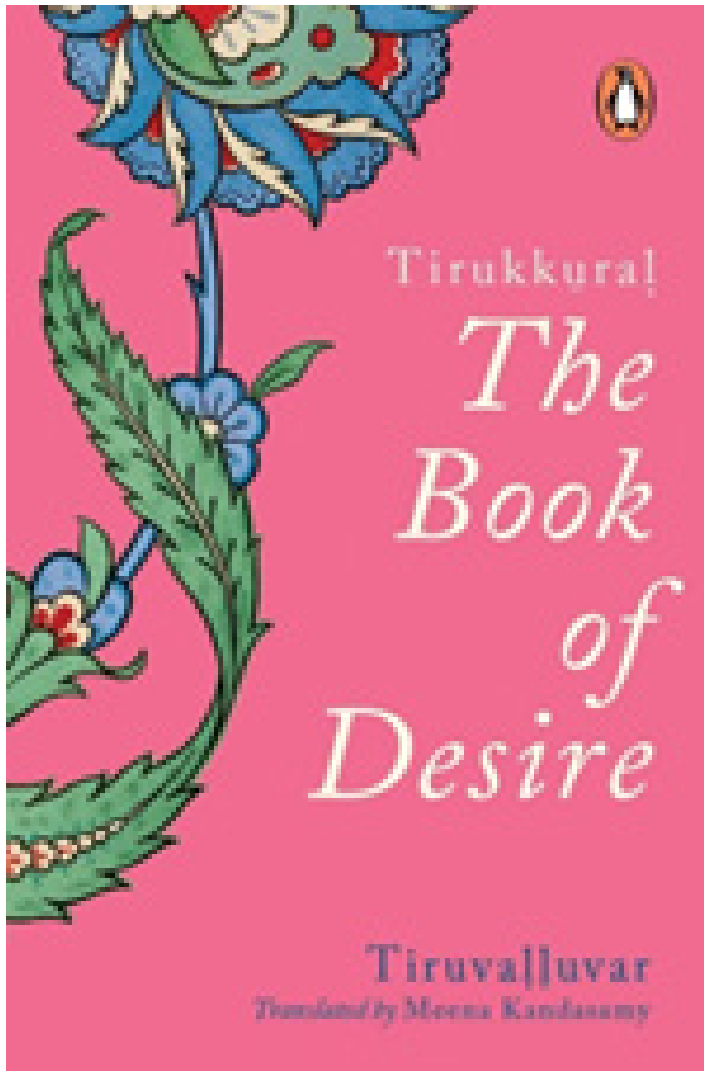
A few hundred thousand years ago, Homo sapiens walked on African soil, searching for food, shelter, perhaps companionship. Externally, their lives were completely different from ours today—but inside our skulls, our brains are remarkably similar to those of our ancestors.

Children on the African savannah did not go to school, but their young brains were perfectly adapted to learn from their environment over a period of several years. Since the time scale of evolutionary change is so slow, the structure and function of children's brains have not changed over the millennia. Learning from one's environment is an integral part of childhood, and those of us who teach or design learning environments should keep this in mind.

In this essay, I hope to persuade readers that the creative use of teaching-learning materials is a powerful way to align schooling with the way children's brains are built to learn.

Childhood has evolved as a special stage of life, during which the individual has the time and opportunity to learn what it takes to survive in the particular situations into which he is born. For humans, this period of time can be as long as 18 years. Other animals either have shorter childhoods or need no parenting at all (for example, sea turtles are independent from their parent's right from the moment they hatch).

The disadvantage of shorter childhoods is a greater inflexibility in response to changes in the environment because more has to be 'programmed' into the young, in the form of instincts. Instincts are responses to stimuli that have existed in the environment for millennia, so that if the environment changed abruptly, the same instinct could lead to death (for example newborn turtles move instinctively toward light, even if these are artificial lights strung along the beach).



The value of our longer childhood is that we seem to have fewer programmed instincts, and therefore can learn to adapt to our environment over a period of time.

But to say that we have fewer instincts misses an important point; we are not born 'blank slates'.

In fact, children have a lot of programmed instincts that make them ready to learn. This readiness to learn comes in the form of many strong tendencies and preferences that babies and children show, and if we want to teach them, we should work with these forces rather than ignoring or countering them.

One big mistake we have made is to forget that children are designed to learn from real-world environments.

Decades of psychological research has documented how just in the first few years of life, children spontaneously develop an impressive and complex understanding in several domains of knowledge. They seem particularly tuned to the domains of language, of number and space, the properties and types of living things, the behaviour and thinking of other human beings and the properties and mechanics of physical objects.

Through interaction, feedback, repeated trial and error learning, children make sense of these different worlds. They soon figure out how to understand and communicate in the language(s) they are surrounded with; and they begin developing a mental number line which will later adapt to include fractions and negative numbers.

They learn which four legged-creatures are dogs, which are cats, and which are chairs without life and intention. They figure out the intentions of other people from reading into their actions or even just body language. They also learn countless things about the way objects move in space- force, speed, direction.

All these areas of learning happen because children explore the world with their whole bodies, acting on things, interacting with people, and observing the effects of all this. Nobody needs to explicitly teach them any of this, and it isn't even necessary to have expensive gadgets or toys- any normal environment will do.

Of course, you might ask, we expect our children to learn a great deal more than all this, from quadratic equations to Carnatic music. Don't we need special environments and explicit teaching for this? Absolutely we do, so we invented school — but we forgot that child's brains, whether in school or outside, retain the same capacities to learn best from multiple concrete experiences!

In stark contrast to the real world, a classroom is very restrictive and affords so little opportunity for acting upon the world. Children sitting at desks in typical classrooms are expected to passively absorb what they hear or see on blackboards, posters or textbooks. They don't get to handle things, and are in fact expected to be silent most of the time. Many of the avenues usually open to a young learning brain are blocked.

Teachers who realize this try their best to make their classrooms richer in terms of a variety of experiences for their students. At the governmental level too, there has been recognition of this need.

Children learn in a variety of ways — through experience, making and doing things, experimentation, reading, discussion, asking, listening, thinking and reflecting, and expressing oneself in speech, movement or writing— both individually and with others. They require opportunities of all these kinds in the course of their development.

THE NATIONAL CURRICULUM FRAMEWORK OF 2005

The Sarva Shiksha Abhayan allots a small fund for each government primary and upper primary school teacher to purchase concrete materials that enhance learning, including globes, blocks, rubber tubing and sticks for making polygons, and so on.

So although we have taken children out of the real world and into the classroom, we are bringing in select materials that we hope will fulfill their need to learn through interactive experiences.

Some are well designed, as for example material that allows you to play with exact fractions and put them together to make other fractions, wholes, and improper fractions.

Some are particularly useful, such as models of molecules and maps. Materials like these teach children concepts that could not possibly be deduced by them simply in an open exploration of the real world.

Similarly, 'raw' materials such as tubes and sticks allow children to explore the geometrical properties of shapes that are not easily found in nature.

Here I would like to highlight two TLMs for their immense learning value:

the world of nature, and

the world of other human beings.

To allow our students to interact more freely with both worlds, we have to take them outside the classroom—there is no substitute for this.

To 'use' nature and other people as TLMs means to structure children's interactions with both, to go beyond their spontaneous, playful interactions. Here are some examples of how my colleagues and I have done this.

We are blessed with a campus in natural surroundings, far outside the city. It is a landscape of boulders, trees, grasses and paths that wind around everything before looping back to where you started. The children quickly gain as much or more comfort in the wild spaces as they do in the classroom.

Their free play time is spent outdoors, in addition to which we teachers plan several specific, structured engagements with the natural world. For example, students do close observation of plants, insects, and lizards and make very detailed drawings. They learn to draw what they see in front of them, rather than from their stored knowledge or imagination.

They grow vegetables in patches that they maintain through the rainy season. They go on walks, learn to climb trees and rocks, and learn to navigate using these as their trusted landmarks. Through such activities, students have questions about what they observe, and we take time to elicit and record these for everyone to consider.

For example, how can you tell a weed from a plant? How fast does the bamboo grow? Can we tame a bird in the wild? When will this rock fall down? And how did the centipede die? Over the months, we figure out with them how we might investigate these questions.

We encourage them to make guesses based completely on their own observations, and we do not refer to texts or the internet for any answers. These activities in our perception most closely match the way children learn in real world environments.

In older classes, our use of nature as TLM becomes more formal and rigorous. Courses in biology, environmental studies and geology can access the immense outdoors as the laboratory! Senior students can quickly 'download'

information from textbooks and teachers, but we hope the spirit of investigative learning and hypothesis-generating is still alive. And young people who retain a close and affection contact with nature are so vital to the future of our planet.

A teacher in a city school can take his students on short trips; maybe to a beautiful grove of trees just a half-hour walk away, or a park nearby. Schools already do trips like these, but the way their time is spent in these beautiful places needs to be re-imagined.

What about social interactions as TLM?

In typical classrooms, the child's natural inclination to socialize is frowned upon: don't talk to your neighbor, don't talk out of turn, work alone and don't help each other. All these rules can be relaxed if we have smaller class sizes and more flexible teaching styles.

We must allow classrooms to be noisy discussion spaces for some time each day, and we must encourage students to work together in pairs or small groups. The benefits of all of this are well documented, yet what prevents us teachers from making it happen is partly our fear of losing control over the discipline of the class.

If we realized how important these social interactions are to our children's learning and development, surely we will find ways to change classroom cultures to become more interactive, without becoming dysfunctional!

My colleagues and I make every effort to encourage students to engage with people in various learning contexts through the years.

Social science and language classes are essentially all about human interaction. There are plenty of well-written books in these subject areas, and reading can give children a window into the world of other people; but nothing beats the immediacy of a face-to-face conversation. So whenever possible, we take small excursions outside school for students to meet and talk with people in the neighbourhood.

Language classes often include interviews with family members or residents of the nearby village. Children have made 'Day-in-the-Life' booklets about a variety of people: ice cream seller, traffic policeman, and mochi and auto-rickshaw driver.

When we learn about the history of Bangalore, it always involves a few precious conversations with elderly people who have lived and worked in the city for decades, and who remember the old days with vivid clarity.

We have found that people from all walks of life are happy to talk with children — we have never yet been told we are being a nuisance! What the children understand about these lives is documented in illustrated booklets, and added to the school library.

Nothing can substitute for direct interactions with natural processes and with other people. We have to change our ideas about traditional classrooms to allow for these interactions, and I feel there is already recognition of this among many educators and teachers.

Progress is definitely happening...but recently I read something that made me wonder. It was an article1 about an educational breakthrough called Connected Worlds (currently installed in a museum in America), described as 'a cutting-edge installation that aims to teach youngsters about environmental science by immersing them in it.' Immersing them in what? Well, a digital, virtual environment complete with animated waterfall, animated forests and creatures, and the computing capacity to respond to children's actions in this environment.

The article states that children learn better when they see the connection between their actions and what happens in the environment, and that this does not happen easily in a classroom. It ends with this cheerful thought: '...the best thing we could hope for is that, a decade hence, an educational environment like Connected Worlds will seem totally ordinary.'

Sometimes, I worry that we are going to go straight from classrooms to virtual worlds!

Source: https://azimpremjiuniversity.edu.in/news/2022/direct-interactions-with-natural-beings-as-teaching-learning-materials-tlms

✧✧

3. Case Studies

Lessons India Should Learn from Odisha's Leprosy Colony on Using Public Spaces to Fight Stigma

By Dr Shubhankar, Arunima, Sree Kumar

In response to the persistent social stigma faced by leprosy-affected communities, the Rourkela Municipal Corporation and Rourkela Smart City Limited undertook initiatives to create inclusive public spaces, addressing the specific needs of young children and caregivers.

When Jita Mallick, an educator at Durgapur Anganwadi (early childhood learning and development centre) in Rourkela was assigned to work with children in a leprosy colony community, she could see how "the young children from the community continued to bear the brunt of the social stigma despite not being affected by the disease".

India is home to the largest number of leprosy-afflicted people in the world. Currently, there are close to 1,000 leprosy colonies in India, consisting of over three million people. They mostly reside in the fringes of cities and villages. The younger generation from the leprosy families is not affected by the disease anymore. However, the leprosy-affected community continues to face stigmatization and

isolation, which has been normalized due to a lack of awareness that persists to this day.

The Durgapur Leprosy Colony lacked a dedicated play area for young children. "There is no play space in the community. Children play in spaces full of mud and stagnant water. Sometimes it leads to infections," rues Dullamani Pradha, mother of a six-year-old.

The young children and caregivers' range of mobility, being limited to the neighbourhood daily, also impacts their access to safe and healthy play spaces and outdoor time, as compared to surrounding formal settlements.

Recognising the challenges faced by the community, the Rourkela Municipal Corporation (RMC) and Rourkela Smart City Limited (RSCL) decided to bring about sustained transformation through the creation of a young children and caregiver-friendly public space under the Nurturing Neighborhood Challenge (NNC).

Led by the Ministry of Housing and Urban Affairs and Smart Cities Mission (MoHUA) and supported by the Van Leer Foundation with WRI India as its technical partner, the NNC is bringing a young-children-and-caregiver-friendly perspective to urban planning across 10 Indian cities. This experience offered many learnings that could benefit Urban Local Bodies (ULBs) working with such vulnerable communities.

Listening to the community is key

RMC and RSCL interacted with Leprosy Pada residents, both young and old, and conducted regular community engagements to understand their needs better. Such interactions not only helped in garnering a consensus but also helped in identifying the existing usage patterns of the residents that enabled the clustering of different activities.

Suitable sites for the interventions were then identified based on the data collected to ensure the safety, accessibility, and footfall of young children and their caregivers. The involvement of local women from the start has further ensured the maintenance of the transformed space under the MUKTA (Mukhya Mantri Karma Tatpar Abhiyan) mission.

Testing solutions to gauge community response

Trial interventions that involved all stakeholders helped foster a sense of ownership in the project. RMC and RSCL piloted and tested out the solution using low-cost, easily available materials such as tyres and sand. These temporary play elements received an overwhelming response from the community children.

In a first, an event organised in this neighbourhood attracted outsiders as active participants. The open play space was clearly demarcated with fencing and seating was added near the playground for the accompanying caregivers. "Our children are now spending the whole day in the playground," laughs Nandini Bariha, a caregiver of a five-year-old.

Reimagining the surroundings towards shaping one public realm

Seeing the growing public acceptance, RMC and RSCL started appreciating the public space and began enhancing the overall area by closing open drains, installing seating, and setting up an outdoor gym. While the play area sees a high footfall of children, the adjacent areas are turning out to be dynamic entities, attracting residents from both Leprosy Pada as well as from the adjacent colonies.

This area is today a gathering space for multiple activities including health camps and women's self-help group meetings.

Securing funding through scheme convergence

With the growing footfall and demand from children, RMC and RSCL expanded the scope of the work to add formal play equipment in the park and enable the maintenance of the space. RMC and RSCL secured finance for the same by converging funds from various programmes and schemes — such as the JAGA Mission, MUKTA Mission and SHAKTI Mission — that aim to provide quality livelihood opportunities to slum dwellers in different cities in Odisha.

"We are happy to see outside communities come to Leprosy Pada and use our park and gym. This makes us feel dignified. We have become equals now and there is no difference between us and them," says Gopal Bini, an 80-year-old resident of Leprosy Pada.

Through the active participation of the community, a public space for young children was not just improved but is now thriving as a space for everyone. People from adjacent communities now visit the Durgapur slum more frequently, blurring the physical and social boundaries that once existed. This is also fostering a sense of dignity in the residents who now feel like a part of the larger community giving them the hope that there is a better, inclusive future for their children.

Source: https://vikalpsangam.org/article/lessons-india-should-learn-from-odishas-leprosy-colony-on-using-public-spaces-to-fight-stigma/

Nature-Based Learning Programmes Improve Environment and Climate Literacy in Chennai

By Yuvan Aves

- *Nature-based educators in the coastal city of Chennai are working to improve environment and climate literacy through outdoor, place-based programmes. They are also taking steps to mainstream nature education in classrooms.*
- *Chennai, with a 19-km coastline, is one of the most at-risk coastal cities. Nature educators believe that it is vital for people to ask questions and know their surroundings to mitigate and reduce risks in the future.*
- *Naturalists who created a bilingual guide (in Tamil and English) for the coastal fauna of Chennai, say that documenting the biodiversity of a region in the local language, also means documenting local knowledge.*
- *The nature-based learning programmes are tailored according to different age groups. With children, the aim is to create a sense of excitement and wonder with their landscape, while with adults, it's to*

help them understand the need for that space and then advocate for it.

Walking on the shores of Elliot's beach in Chennai, Tamil Nadu, with an 18-member-group of children is naturalist, educator and activist, Yuvan Aves. He asks them, "Oh! So, this is interesting. Do you know why this seashell has a hole here?"

Thamizhselvan, 15, from Urur Olcott Kuppam, a fishing hamlet in Besant Nagar, giggles and replies, "Hmm... maybe to put a chain through it and wear it around your neck?" Aves pauses for a second and gives him a baffled look that makes the entire group burst into laughter.

Aves then opens a booklet with images and names of common coastal fauna found in Chennai. He explains, while pointing to the image of a bladder moon snail, "Carnivorous seashells like the Nilanathai shoot hydrochloric acid to penetrate their prey's shell and eat the soft flesh inside."

For the next forty minutes, a baffled Thamizhselvan trots behind Aves, asking questions and brimming with curiosity as they continued to explore the biodiversity along the coast.

The youth participating in the shore walk, ranging in ages from 13 to 24, are selected from climate-vulnerable communities and are called 'youth climate interns'. They undergo a 10-month climate internship programme under Palluyir Trust for Nature Education and Research.

Established in 2021, the Trust focuses on empowering communities that are often marginalised and at risk of exposure to the impacts of climate change, through nature-based education (NBE) and advocacy. In Chennai, they work towards making place-based, outdoor education a common practice in educational institutions and for the city's public.

The need for nature-based education in Chennai

Chennai is one of the most at-risk coastal cities in the entire country. The role of nature education becomes all the more relevant in this case, so that people are empowered to understand and question their surroundings and potentially be motivated to take action to mitigate and reduce risks in the future.

By 2025, 100 metres of Chennai's 19-kilometre coastline is at risk of being submerged because of a projected 7 cm sea level rise. The city ranks second on the climate vulnerability index in a district level vulnerability assessment conducted across India by the Council on Energy, Environment and Water (CEEW).

The naturalists believe that the city's vulnerability is further exacerbated by Tamil Nadu allowing polluting industries to be set up about 20 km north of Chennai in the ecologically sensitive Ennore-Pulicat region. There is an exponential residential development down south along the coast, poorly managed water bodies within the city, construction waste dumped in wetland regions and more. The Ennore-Pulicat region is historically important and attracts a lot of biodiversity and serves as an important wetland.

During their internship period, the youth climate interns learn how development projects negatively affect the environment and biodiversity in the region and what local communities can do to mitigate and reduce risks in the future.

"To reach out to the public, we need them to form a connection and sense of belonging with

that landscape," says Aswathi Asokan, a nature-educator at Palluyir Trust and a postgraduate student pursuing her Masters in Wildlife Conservation Action.

Asokan explains how nature education needs to be tailored for different age groups, "With children, our aim is for them to create a sense of excitement and wonder with their landscape. And with adults, it's to help them understand the need for that space and then advocate for it."

Proven benefits of nature-based education

A 2017 study conducted by the University of Cambridge indicates that an involvement with nature at an early age has long-term advantages. The study results prove that providing positive experiences in nature during childhood and better knowledge of actions that promote environmental stewardship may help develop care for the environment in adults.

"Nowadays, people aren't connected to their surroundings. They ask, 'so what?' to any development projects that come about and shrug it off," remarks Prem, a teacher from Pudiyador, an organisation that works on the development of marginalised communities. "With outdoor, direct experiences while learning, children see the consequences themselves. You don't have to tell them."

Gaining environmental knowledge in combination with direct experiences has a stronger influence on people's behaviour than indirect experiences, states another article published by Tufts University in 2002.

Mainstreaming nature-based curricula

While these educators organize nature-based learning sessions for the people interested to learn, what can be done to include nature-based education in the classrooms? Charlotte Jeffries, who is also part of Palluyir Trust, who spends her weekends and days off on the beach educating youth and teachers from Pudiyador, said, "I can't change the system but I can try and change how schools work in the city. I want to at least encourage schools to allow a two-hour session every week to introduce children to the biodiversity and nature in their landscape."

Across India, similar initiatives surrounding nature-based learning are emerging. For instance, Spiders and the sea, an organisation based in Bengaluru conducts urban walks in the city. Nature Classrooms, another Bengaluru-based initiative of Nature Conservation Foundation, aims to integrate nature learning with the existing environmental studies curriculum for primary school children.

However, nature-based education is a long way off from entering mainstream academic curricula.

After realizing that there have been no studies on nature-based education in India, Aves and his team reached out to the Education Department at the Greater Chennai Corporation (GCC). They submitted a plan to begin programmes for middle-school children from government schools in the city. The Education department has agreed to shortlist five schools for the pilot programme to begin in June 2023.

"As long as there is a defined plan and execution, we would be open to conducting a pilot programme for such initiatives," Sharanya Ari, Deputy Commissioner (DC) of Education at GCC, tells Mongabay-India. She also explains that some of their major challenges for such programmes include dealing with a large crowd of students, giving equal access and opportunity to all and figuring out funding sources for effective implementation. "But we have to

ensure that this does not eat into the students' existing schedule," she adds.

Asking the right questions

Nikkitha Terrasa, a 20-year-old nature-educator at Palluyir Trust and a postgraduate student in Zoology, reveals that her enthusiasm for nature-based education stems from her experience as a student in a traditional classroom set-up.

"I remember how my teachers frowned at me for asking new questions. They said, 'It's not part of the syllabus' or 'why are you asking unnecessary questions?' I was shocked to hear that response," shares Terrasa. According to her, the current education system is heavily reliant on the exam portions and not what is relevant to the students and the world around them. "People just probably end up apathetic or apolitical," she adds.

To counter that apathy and inculcate problem-solving skills in children, one of the activities the youth do as part of the nature-based programmes is Kelvi Sanguli (or) Curiosity Chain. "If you see a crab, you're allowed to ask any question about it: Why does it have ten legs? Why does it look pale? – The idea is to only look for questions; not answers," Terrasa says.

When asked why asking questions is important and how it is tied to being political, Terrasa laughs and says, "Otherwise, someone will walk into your space, take everything away and you won't even know that it's happening. An informed and engaged community would defend its environment. The basic thing would be to acknowledge the fact that we aren't an independent or a separate entity from the ecology around us."

Documenting the ecosystem to understand the threats

As an extension of nature education, surveying and documenting local environments can potentially support activism to protect these ecosystems.

Some of this work is being done by Asokan and Aves along the 1,076 km coast of Tamil Nadu and Puducherry where a growing number of infrastructure projects are being proposed. Environmental activists say that these projects ignore or devalue the unique landform of this region. For instance, the State Fisheries Department proposed setting up twin harbors for 235 crore in Kaliveli estuary, a region bordering the Chengalpattu and Villupuram districts. And this ecologically sensitive region is home to the Kaliveli bird sanctuary and to thousands of olive ridley turtles that visit the shores every year during the nesting period. The project was later stalled by intervention from the National Green Tribunal.

Between September 2020 and April 2021, a team of six volunteers from the Madras Naturalists' Society including Asokan and Aves conducted field surveys in this biodiversity hotspot of Kaliveli Lake and four others along the north Tamil Nadu coast: Pulicat Lagoon, Adyar Estuary, Kovalam-Muttukadu Backwaters and Odiyur-Mudaliarkuppam Lagoon.

Of these, Odiyur and Adyar Estuary have not been declared as Important Coastal and Marine Biodiversity Areas (ICMBA) by the Wildlife Institute of India. "We checked to see if these two areas also satisfied the criteria to be marked as ICMBAs and they did," shares Asokan. Some of the criteria to be qualified for an ICMBA include a coastal ecosystem's resilience and its biodiversity uniqueness.

Their aim was to provide scientific literature for regions that had limited to no existing documentation. "This form of documentation can one day be used to help fight for that place against any possible threats," says Aswathi.

On January 21, 2023, Aves, Terrasa and Jeffries carried out bird surveys at the Odiyur Lagoon and found over 17,000 migratory ducks including the Northern Pintail, Eurasian Wigeon and Garganey. Large and small wading birds like the Eurasian Spoonbill, Greater Flamingos and Black-headed Ibis were also documented in the hundreds. In total, the team counted about 20,000 water birds including migratory ducks and large and small wading birds.

They presented the findings to the Tamil Nadu State Coastal Zone Management Authority (TNSCZMA).

Furthermore, last year, the National Highways Authority of India proposed to widen a stretch of the East Coast Road (ECR) near Odiyur lake. Odiyur Lake from a two-lane road would be expanded to a four-lane road. Located 92 km south of Chennai, the Odiyur lagoon is a rich and complex wetland system. It is about 10 km in length and 5 km in breadth and is a flood catchment for the region. Sea grass present in the lagoon helps sustain small-scale fishing practices and supports local fisherfolk in catching shrimp and crabs.

In a letter to the Tamil Nadu State Coastal Zone Management Authority (TNSCZMA), Aves wrote, "We found that these areas have been erroneously marked as CRZ IVB and a small stretch of land as CRZ IB. With our study and findings, these areas definitely qualify to be reclassified as CRZ IA regions (ecologically sensitive areas) for their eco-sensitivity and biodiverse nature." The CRZ Coastal Regulation Zone Notifications are issued under the 1986 Environmental Protection Act of India to regulate development activities along the coast.

The team also found that the presence of sea grass studied in the region and the sand dunes present on the southeastern edge of the lagoon were not marked on the CRZ maps.

They shared their findings with the petitioner who filed a case with the Southern Zone of the National Green Tribunal (NGT). On 7 March 2023, the court ordered an interim injunction that asked the NHAI to reconsider realignment of the national highway near the Odiyur lagoon.

Local language and local knowledge

"Through this entire effort, we've been able to interact with people from the fishing communities who have named the local flora and fauna based on their behaviour and their experiences in interacting with them," says Asokan. This led to them creating the bilingual (Tamil and English) coastal fauna of Chennai guide with names of 160 common species found in this coastal region – the very same resource that serves Thamizhselvan and other youth interns.

Commenting on the importance of educating children in their local language, Aves shares, "I remember a child asking me, 'Why should I learn English?' - Because it is still seen (by many) as an oppressive force. We know that the mother tongue is the language in which the brain thinks. So, if there are certain concepts that need to seep deep within the child's thinking, we need to convey them in the mother tongue."

The coastal fauna of Chennai guide paved the way for numerous other nature-based materials that the entire team has worked on.

Asokan shares that despite the difficulties in documenting these names in Tamil it was crucial because "when you document local language, you are documenting local knowledge."

"It was only because of the Tamil names that I was able to remember everything I learnt much easier," says Gowtham, a 21-year-old from Urur Olcott Kuppam, who is a youth climate intern. He now focuses on empowering children within his community by facilitating bird watching sessions for primary school students.

Inspired by the coastal guide Gowtham, he spent two weeks creating a custom activity sheet for the bird watching sessions that the children can use. He says, "I encourage children to name the birds however they want to. It could be with the sounds it makes or what it looks like." He added, "This helps them remember the species and be present. I then proceed to educate them on the species name and its significance. This way, they're involved and learning at the same time."

Through guides like these, hands-on activities and advocacy efforts with local schools, nature-based educators in the city are striving to inculcate a sense of wonder and appreciation for the environment among the city's youth.

"My definition of home has changed," says Jeffries, who switched careers after being inspired by the youths she worked with and their passion for conservation. Having been a nature-based education intern herself, she shares, "Earlier, if anyone ever asked me 'what is home to you?' I would have pointed to the walls of my room, my locality, malls or restaurants in the city." She smiles and adds, "It now includes the beach, parks and the species around me!"

Read more here: https://vikalpsangam.org/article/nature-based-learning-programmes-improve-environment-and-climate-literacy-in-chennai/

✧✧

Note to the reader : In case you want to receive People in Conservation at a different address, please send us your new address at milindwani@yahoo.com; else please send it by post to the following address:

Kalpavriksh,
Documentation and Outreach Centre,
Apt.5, Shree Dutta Krupa, 908, Deccan Gymkhana, Pune 411 004, Maharashtra, India.
Website: kalpavriksh.org

People In Conservation - Biodiversity Conservation and Livelihood Security

Volume 13 Issue 1 March 2024 - August 2024

Editing: Milind Wani

Compilation: Arnaz Khan

Published By:

Kalpavriksh, Apt. 5 Shree Dutta Krupa, 908 Deccan Gymkhana, Pune 411004

Phone: 91-20-25675450, 91-20-25654239

Email: kvoutreach@gmail.com

Website: www.kalpavriksh.org

Funded By: MISEREOR, Aachen, Germany

For Private Circulation

Printed Matter

To: