Isai Ambalam School Transformation Program  

based on values and experiential learning

Amount allocated: Rs. 6,52,370

Abstract:

Isai Ambalam is an Auroville Outreach school serving village children from kindergarten to 7th standard. Various initiatives and methodologies have been tried in the school so as to provide the children with the best learning environment, but every effort seemed distinct in silos. In the last few months of the 2016-17 school year, we found that connecting threads of value-based education, critical skills and Education By Design (EBD) allowed us to synthesize the various activities together and create a collaborative learning community.

This project aims to take forward what we have developed and to expand its possibilities through technology and through connecting with like-minded schools and resource persons. We will also work toward systematizing our curriculum, developing our physical education program, re-skilling our teachers, and meeting compliance requirements for us to be a registered school.

Q2 report (July – September 2017):

Towards the inculcation of values, critical skills and competences at our school, we have worked on the following aspects so far:

1) Values and Education by Design (EBD)

This term we did a number of EBD projects: honey bees, seeds, leaves and plants, raised-bed gardening, a garden at the parking area, a school map, water, and creation of a ‘clay room’ from an old keet hut. Through these projects, theoretical learning was converted into real-life education. Two major themes emerged: (1) the values needed for a teamwork and a collaborative learning community, and (2) creativity and perfection.

The project of transforming an old keet capsule into a beautiful clay room was one of sustained effort and participation by the children. It brought in the aesthetics of transforming every space at the school into something beautiful.

With regard to the water situation at the school, the children created an instrument to measure the depth of water in our borewell. They kept an eye on it often, and compared the measurements to those taken by the Auroville Water Group. The students continue attempting to refine the measurements to be more accurate, looking at how to automate the instrument. They also tried to problem-solve the tank overflow system, building a small buzzer-based detector that indicates when the water is overflowing.

2) Re-skilling teachers

We have been actively working on re-skilling our teachers. We brought in resource people, including Ravi Aluganti who gave a workshop on hands-on learning through puppetry, and others who came to observe and give feedback to our teachers.

3) CBSE (Central Board of Secondary Education) registration

We continued our conversations with New Era Secondary School, and the trustees have agreed to extend their school’s registration to Isai Ambalam School. This is a huge step for us; we believe it will be useful in attracting and retaining more students in the coming years, and in
making the school more relevant in current times.

Three of the youth from STEM Land (affiliated with our school) have registered for the in-service government D.Ed program, which will further support compliance with CBSE guidelines for qualified teachers.

We also received feedback from the health inspector that for CBSE compliance the kitchen walls had too much soot and the lighting was insufficient. So all of us teachers worked together to sandpaper the walls and install bright lights, to renovate our kitchen. Such training and team-building activities have helped bring cohesion amongst the teachers.

4) Activities and programs for holistic development

In addition to the EBDs, we added activities for holistic development to the school program, including swimming, music (vocal and tabla), crafts, and clay. These are additional to the existing Judo and dance classes with different resource people. Swimming is a very different experience and atmosphere for the children, and has boosted their confidence.

Many of these activities as well as the EBDs were made possible thanks to our Saturday school and sleepovers, during which we plan new upcoming projects.

5) NKN (National Knowledge Network) progress

We are moving toward our goal of getting the fiber-optic backbone to connect Isai Ambalam School to the other Auroville schools, STEM Land, and resource people across the country. (The amount allocated for NKN was less the estimated cost, so funds from the Isai Ambalam Guest House are being used for this purpose.)

6) Creation of a ‘learning ladder’ for the CBSE syllabus

We have been working on creating a ‘learning ladder’ system for the CBSE syllabus, following a pathway of 3 milestones for each subject from 1st to 3rd grade, with 12 activities per milestone. We believe that this tool will be of help in supporting self-learning in children, and in time self-directed learning.

7) Stronger connections with Auroville

We would like the children at our school to get a rich exposure to Auroville. We have been regularly visiting Matrimandir every Tuesday with one grade, and we have visited farms including AuroOrchard, Pebble Garden, Botanical Gardens and Discipline Farm. The children staying overnight were also able to participate in the Yoga Day event and in the silent bonfire gathering on Sri Aurobindo’s birthday.

We have also had some resource people from Auroville come to our school, e.g. from Mantra Pottery who supported the children with clay work in our new clay room, and Deoyani who works with children on the subject of water on Saturdays.

Reflections:

- Auroville is a great resource of active work, and we have been able to visit various farms and engage with different activities that we have replicated on a small scale at our school (e.g. raised garden beds).
- We notice significant progress in these children we engage with in the evenings and on Saturdays – in their confidence, ability to engage in English, interest in learning new things, and general level of activity and ownership of the school. One of the challenges has been the reluctance of some parents (especially those of girls) to let their children stay over at the school.
Q3 report (October – December 2017):

1) Implementation of the CBSE ‘ladder’ system

By September we had prepared cards mapping the CBSE textbook curriculum to hands-on learning activities. The question was then how to ensure that replacing classroom instruction with activities would still cover the learning outcomes required at the students’ age/ability. So we looked at meaningful evaluations at the end of the activities, to track the progress of the children. We had help from an intern, Bhuvana, who is an MA Education student from the Tata Institute of Social Sciences (TISS), Hyderabad. She reviewed the cards, prepared the assessments for one milestone, and worked with the teachers to cover the remaining milestones for grades 1 through 3.

Now we can say that the cards and evaluations provide a rigorous mechanism for the teachers to track the progress of the children, as well as helping the children be aware of where they are. Collaborative learning has become more common than classroom instruction since the implementation of the CBSE cards. The children support each other, take the help of the teacher when needed, and keep the teacher up-to-date regarding their progress. The teachers in turn estimate the progress and then evaluate the competency achieved by the child.

2) Software to track the children’s progress

The learning outcomes of activities and lessons had been identified across grades. Tracking these plans and reviewing the outcomes was time-consuming for the teachers. To ease this and to track more systematically, we coded the outcomes and created a software where the teachers can estimate the learning path of each child and track their progress.

3) Clay oven

Children at our school made dolls and toys out of clay. They wanted to bake the toys that they made. So we went to a pottery place, where a potter explained how to build an oven. During one of our sleepovers, the 4th and 5th graders went to buy bricks and bought red sand from Matrimandir. We started building our own oven in our school. The potter visited us to give instruction. The rain of the last month disrupted school, as well as the sleepovers, but we are slowly finishing the oven.

4) Leaves and plants EBD

There were some common questions about leaves that we as a class didn’t have answers for, like ‘why do leaves change color?’, ‘why do leaves fall from tree?’ So as a class we watched videos on why the leaves are green, why they become yellow and fall. We also watched a video about different parts of a plant. We did activities like counting the different varieties of trees on campus. The children split into two groups and were able to find 27 different varieties of trees. We collected all the different kinds leaves, and grouped them based on shape, texture, size, edges, color.

We also went on a field trip to the Auroville Botanical Gardens. There a person named Sathiymoorothy explained about the plants. He talked about their survival techniques, leaf structure, and provided names of the trees and plants. There the children learned about different types of plants, and finally they made a herbarium book.

5) Kitchen waste-water treatment plant

The children wanted to find a way to water the parking-area garden using recycled water. We thought of using the waste water from the kitchen, since daily so much water is used to wash the vessels, clean vegetables, etc. So we estimated the volume of water available from the kitchen, based on the volume of the tank: around 500 L per day.

We designed a two-tank filtering system for cleaning the water. We dug a 4-foot pit to insert the cement ring. What we could not complete ourselves we got the help of
professionals. We bought a motor and PVC pipes for taking the water from the tank, and also
dug a trench from the pump location to the parking garden. We also built a structure to
house the motor to protect it from the rain. What is left to do is the electrical work as well as
working out a filtering system. With the rains easing out, we should be able to complete this
in the next quarter.

6) Vegetable garden EBD

In the previous report we mentioned that we had made a raised garden bed. In the last
three months we made a bamboo fence around the garden. We set up an irrigation system in
the garden using sprinklers. We also started planting some plants in our bed. Children from
6th and 7th grades took responsibility to connect the sprinklers all over the garden. It was a
new experience, connecting sprinklers and routing the pipe to the garden. We are starting to
see plants come up now, and children take turns watering the plants.

7) Magazine EBD

A magazine project was done by 3rd to 7th grade students, which improved their reading,
writing, drawing, imagination and creative thinking skills. The 5th grade students focused on
language. Through the project they framed simple sentences in English and practiced the
rules of tenses in grammar. They are able to write 10 to 15 sentences on a theme.

8) Values project

We have started our ‘values’ project. The teachers wrote about some of their
experiences with Perseverance, Patience, Time management, Truth, Self-confidence and
Goal-setting.

5th, 6th, and 7th grade students are continuing the value project they started last year.
They wrote their experiences with Patience, Truth, Self-confidence and how to organize their
routine work at the school. We are able to see changes in students' taking responsibility for
their daily routine work, such as keeping the school clean and conducting morning and
evening prayers. Many children now share at the assembly what they have read in books,
magazines, and the news. Most students have started doing their homework regularly.

We had an intern named Venkatragavan, who supported a “5S area” project for 6th and
7th grade students. The students learnt to organize their classroom according to “5S” criteria:
Sort, Set in order, Shine, Standardize and Sustain.

9) National Knowledge Network (NKN) connectivity

The effort to connect Isai Ambalam with the NKN is ongoing. The rains threw off the
work we had done with digging, and it needed to be redone. Now the fibre optic cable has
reached the school.

10) Presentations to parents

The students gave presentations to parents about their EBDs, which were very well
received. Most of the presentations were bi-lingual, and the parents were very impressed
with the improvement in their children's confidence in presenting and in speaking English.

11) Combined sleepover with Udavi School

Due to the rains and the inability to do outdoor work, our sleepovers had been reduced
for a month. Recently this has again picked up, with a combined sleepover together with 9th
graders from Udavi School. The sleepovers are particularly exciting for the children who have
been wanting to build small robots, working on them together with their older peers.
Q4 report (January – March 2018):

This term all the Education by Design (EBD) projects that had been pending were completed, and many new ones were started. Our activities of swimming, sleepovers and Saturday school were further strengthened. We also got our connection to the National Knowledge Network, which is helping us document our work better and is slowly changing how we teach (with access to a reliable internet).

We held a workshop at our school for the Azim Premji Foundation which over 30 science teachers attended. The youth gave a presentation of “STEM Land in Isai Ambalam School”. The teachers looked at the projects that the children had done and interacted with the children. One of the teachers shared that what they found most touching was that we do not attempt to ‘fit the same shoe’ on each child, instead exploring what can be done for each.

We also strengthened our links to the other Auroville-related organizations (Tamarai and Mohanam Cultural Centre) that work on children’s education near Alankuppam. The team from Mohanam visited the school and found it an enriching experience. Both organizations are promoting Isai Ambalam School.

Our work on values has made progress with sessions involving the teachers and volunteers at the school. We focused on ‘perfection’ and reviewed our work in that light.

Below are descriptions of some of our EBDs of this term.

1. Clay Oven

In the last report we mentioned that the oven project was still ongoing. Now we have completed building the oven. During the rains, the water started flowing to the oven and eroding it. Children wanted to protect their clay oven from the rain water by making a concrete base structure for the oven. While building the base structure they considered the level of rain water that flows towards the oven; then they collected gravel from the school and started filling around the oven.

![Clay Oven Image]

*Learning outcomes:*
- Ratio of cement, sand and gravel which is used to make a concrete structure.
- Way of arranging a brick (which is placing a brick over the edge of adjacent bricks) when applying mortar.
- Organization and planning – e.g. to calculate and order how many bricks were needed to make the structure and plan to purchase it before starting the work.

2. Kitchen waste water treatment plant

This EBD is done to reuse and save water at the school. The waste water system contains two tanks.
The water from the kitchen that has been used for washing plates, vessels, handwash, etc. from the kitchen gets filtered using stones and is collected in the first tank. This lets the particles settle at the bottom of the first tank, and the overflow goes into the second tank. The water is stored in the second tank and periodically pumped out.

We had mentioned that we completed the basic structure and laying the pipeline in the last report. The children took up the wiring, fixing a motor to pump the water from the pit. The pumped water is used to water the garden. A circuit is connected to the water tank which indicates the height of the water in the pit.

Once we started using the tanks we realized that the water actually fills up pretty quickly and that our estimate of how much water is used every day was perhaps off. It means we need to pump very frequently. This of course is great for the plants and it appears we can reuse a lot more than we thought. However, the water also smells bad and though the plants seem fine we are not :). We are looking into making our own E.M. (effective microorganisms solution). The children in 5th grade underwent training for the same recently.

Learning outcomes:

• We learned about the capacity and volume of the tank we had made. To measure the height of the tank we used a bamboo stick. We used thread to know the circumference. Children took the thread around the circular shaped ring and marked on the thread. The challenging part was that we were not able to find the measuring tape. Then we came up with an idea to use the meter scale which the children already used. We found the height of the tank to be 3m and the circumference to be around 3.14m. Through this we found out that the radius was half a meter. Finally we found out that the tank volume was approximately 2355L.

• Organization and planning: Children learned to calculate the length of wire that needs to drawn from new kitchen to the old kitchen to get power for the motor.

• 5th grade students learned how to build bricks using cement. They made a small wall around the motor to protect it from rain.

• Learning to fix the motor. Students fixed the motor using PVC pipes and T-joint pipes.

• Children learned to connect the PVC pipe using PVC solution.

• Children learned to use materials like drill, axis saw and mason tools.

• Children learned to set up a plug point to take power for the motor.
3. Concreting the Pond

Children made a pond in their school as an EBD and after 6 months it started to crack, primarily due to the roots from the trees all around. When we dug around the pond and cut the roots, the pond had no support around it and cracked some more. We sat at the pond with the children and talked about what we could have done differently (e.g. not build next to large trees), but the children were unsatisfied with ‘lessons learned’, and felt that they could not just let the pond they built go and we needed to make it stronger. Conversations drifted from cementing to concrete and reinforced concrete.
So we bought 6mm and 8mm iron rods and bent them in the shape of the pond structure. While doing this the children learnt about rod sizes and names of the tools that were used.

*The bending and cutting the rods were done by the children. They bought 40Kg of 6mm and 50Kg of 8mm rods for the pond.*

Children made 100 TMT rings to make a beam structure around the pond. Then we bought 1 unit of sand, jelly and 10 bags of cement. We asked a mason for help mixing the jelly and smoothing the pond (only a couple of days), and then the children painted waterproof paint inside the pond.

For us as educators, the creation of the pond brought up the question of what children can do. The children learned the basics of iron bending and cutting, distributed the work and took turns to put it in action to create the mesh; this was inspiring for us.
4. India Map

Students from 6th and 7th grades made a map of India using red soil, clay, bricks, pebbles, sand, alluvial soil and black soil. First they drew a 3m wide by 3m wide box. Each student was given a different part of the country to draw. By using graph sheets they drew the map of India.

They made the structure of India using clay. But after a couple of days it had cracks. The reason, as analyzed by the children, was that since the layer of the clay was thin it dried quickly and developed cracks. They then added a thick layer of red mud on top of the thin layer of clay. By using bricks and red soil, students built the mountains. In order to differentiate between desert, mountains and rivers they used different materials. For the rivers, they mixed the cement with water and drew out the important rivers of India. For desert, they used sand. In the eastern parts of the country, they used alluvial soil.

Tasks were properly divided among students and it took about two weeks for them to complete the map. The final output of the map was looking good with mountains, rivers and other geographical features. By doing this EBD they learnt about Geography of India.

5. Animals and Habitat

The 1st and 2nd graders started doing a EBD on animals and their habitats. They saw videos on the internet about the animals' houses and how they live. How do animals live in the forest and in the village? Children wanted to build a cow shed and a forest.

Sakthi and Vasanthrani supported the children to create a house for the animals. They used thermo col, cardboard and ice sticks and started building the house. They were excited to build a cow shed with ice sticks. They also built a small forest using plastic dolls of trees, domestic animals, and plastic grass. They were concentrated in doing their work.

Conclusion:

The Bajaj Grant has been extremely useful in transforming the school to engage with real-life challenges and refresh the purpose of the school.

It has been an extremely satisfying year for all of us and for us and we aim to continue adding meaning to all we do.