

Nai Talim: Learning Through Productive Work: a Reflection

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Buniyadee Shiksha (Nai Talim), the education system proposed by Mahatma Gandhi, is generally believed to be education system based on productive work. But it should be clear to all of us that though productive work is its basis, learning through that work is its' uniqueness.

By now a lot has been discussed about Nai Talim. One needs to go through the writings of Gandhiji in 'Harijan' or 'Young India' to get a clear picture of his ideas of education. Here we need only one line from his writing for our present context:

'.....only every handicraft has to be taught not merely mechanically as it is done today but scientifically, i.e. the child should know the why and wherefore of every process.' (Harijan, 31.07.1937)

The historical developments leading to the adoption of Basic Education as national policy of education are well known. In the implementation part, education through productive work was integrated into the rest of learning process in such a way that it is difficult to distinguish it from other pedagogies of learning. Therefore, it is necessary that the people concerned have some idea of this form of educational institutions.

The Nai Talim system of education was followed in many Gandhian ashrams along with government schools. Ashrams are residential campuses where all the workers stay together in a community living style and share all the work according to their abilities and have a common kitchen.

I had the privilege to be in one such ashram school established by my father Shri Chitta Bhushan Dasgupta in a remote village named Majhihira, presently in Purulia district of West Bengal. My father was one of the first to be

trained in the Basic Training College in Patna. It will be of advantage to briefly describe the life of that ashram to understand how productive work and service formed an integral part of education for the students.

The school had three sections as per age groups: purva buniadi or pre-basic for children below 5 years of age, nimna buniadi or junior basic 5 -10 years, standards 1 -5, uchcha buniadi or senior basic 11 – 13/14 years, standards 6 – 8 and uttar buniadi or post basic beyond senior basic.

A typical daily routine was similar to any other disciplined school. The basic difference was in the lifestyle adopted in the ashram. Students of class 6 to 8 (uchcha buniadi) were divided into six groups. Each group would get a task everyday in rotation for six days a week. Sundays were reserved for special cleaning and washing.

The tasks were:

- Arrangements for prayer
- Helping the cook & serving food during meals
- Attending to sick (rogi sewa)
- Attending guests (atithi sewa)
- Bringing & distributing dantun, for brushing teeth.
- Cleaning toilets (most important)

The productive work included all stages of cloth production (i.e. cotton farming, harvesting, ginning, processing, tapping, carding, scrunching, spinning, weaving and tailoring), wood work, vegetable and flower gardening etc. for all, whereas paper making, soap making, edible oil production by 'ghani' were performed by students of uttar buniadi (above 8th standard) section.

Students up to 5th standard were exempted from all crafts like wood work and other work like digging with heavy instruments which involved hard muscular strength. Like other productive work, rice cultivation was undertaken on a seasonal basis.

Artistic activities like drawing, music, dancing and dramatics were an integral part of the life of the ashram. It should be noted here these were not mere activities but that involvement of child in all these arts makes him psychologically sounder.

The combined effect of all these activities was on the personality of each student. The products of the 'work through education' were of high quality and carried with them a sense of satisfaction of the producer.

It must be noted here that the productive work education that we had received in those years involved learning from the local artisans who had practiced such work for generations and hence were highly skilled. However, this was not merely mechanical, as it is understood in society, but scientific, i.e. the child should know the why and wherefore of every process. Though it was done partially, the seeds were sown and they flourished as I received higher education in general and physics in particular.

A brief discussion of one of the productive work, namely cloth production will be useful.

Stage 1 - Cotton farming

Process: The process of cotton farming involved tilling by bullocks, levelling, sowing, watering, weeding and harvesting. The process gave us understanding of the ability of a particular pair of bulls' pulling capacity if the plough had to move straight. This meant both the bulls needed to be nearly equal not only in size but also of age (biological understanding about animals, age and size dependence of energy and strength of animals). Later we learned in physics that if two parallel but unequal forces act on the same body, it does not move in a straight line. The plough was designed to make a certain angle with the ground, a larger angle would make it difficult for the bulls to pull and smaller angle would make the tilling not deep enough for cultivation. Even in these two considerations, former was more important as the tilling could be repeated if necessary. This also gave us understanding of the type of roots different plants have. The levelling and making rows equidistant involved teaching of measurements and the need for space for every plant to grow in a healthy manner as well as for movement of people

through the rows for harvesting, thus understanding human physique. The fields where we worked were smaller and hence weeding was done by hand. Weeding taught us how some plants had better capacity of survival than others and mostly the useful plants had less capacity than the plants of which we have not found any use yet. It also taught us the difference in the roots of the weeds and useful plants. Thus we learnt physics, geometry, botany and history of discoveries with this part of the work.

Stage 2 - Cotton processing

Separating cotton from the bulb shell, separating seeds (ginning), cleaning and rolling into punis (cylindrical shapes for spinning).

Cotton processing involved plucking the cotton bulbs by hand. An essential component of this part was judging the bulbs that had matured enough for plucking. Periodical movement through the rows of cotton plantation was necessary as all the cotton bulbs could not be plucked at the same time. The raw or wet ones would not have properly developed fibres and late plucking would have damaged fibres. This again gave basic understanding of plant life.

The ginning is a process of separating cotton fibres from the cotton seeds. This would be done by hand on a small scale when the harvest was dry enough for this separation process. The pressure applied and speed had to be just right for gentle separation without tearing the fibres. The hand operated ginning machine had a pair of parallel cylinders with parallel lengthwise grooves on them through which the bulbs were passed by rotating a handle. The gap between the cylinders was critical. A large gap would allow the seeds to come under the separator and get crushed, while a smaller one would break the fibres, making the cotton useless for spinning. Further processing involved similar skills and knowledge.

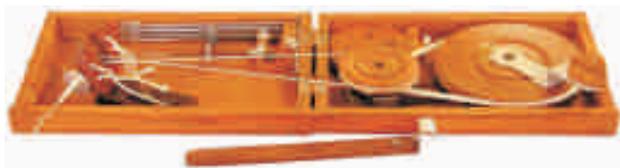
From the entire process we learned the nature of cotton fibre, its length, breaking stress and hence



Cotton Bulb

the gentleness of pressure required for handling of fibres before being converted into threads. The strength of materials would be one of the topics we studied at a later stage. Such learning has better impact than laboratory testing done only once in the laboratories.

Stage 3 - Spinning



The box charkha (a technological marvel by itself)

The box charkha was an intelligent piece of machinery developed during freedom struggle under the guidance of Mahatma Gandhi himself to popularise spinning, increase efficiency and improve the quality of the thread.

The role of “charkha” in freedom struggle is well known.

The original charkha had one large wheel turning the spindle. The large size of the drive wheel was necessary to provide sufficient number of rotations to the spindle for turning the fibres into thread.

The large size of the spinning wheel had reduced portability. It was necessary to have an instrument which was more compact, easy to assemble and easy to handle. The khadi workers could carry the small and compact box charkha from village to village, thus making the khadi movement popular.

The box charkha itself gives fundamental knowledge of pulley system, friction, tension and entire idea of rotational motion, so fundamental to anyone learning physics and mechanics. Anyone will understand most of the points by just looking at the picture, the rest will become clear when one actually starts working with it.

Stage 4 - Weaving and Stage 5 - Tailoring (can be similarly understood)

Some of the skills and qualities that all the productive as well as other forms of work developed in the students (particularly me) can be listed as follows:

- Procedural understanding
- Cause and effect relationship
- Sense of proportion, measurement, alignment

- Cost effectiveness
- Environment and conservation of nature
- Spirit of enquiry
- Human qualities such as compassion, brotherhood, team work, etc.

It is generally believed that Nai Talim system is only suitable for menial work and not for intellectual work and the students from Nai Talim are not able to cope with modern higher learning. My personal experience has been otherwise. Barring the initial stages of higher education where I had faced difficulties due to lack of knowledge of English as a language and change of domain leading to cultural difference, I had no difficulty in learning or teaching (some information regarding the same is given below). The above mentioned qualities made others view me as a different person. The same is the experience of several others who have been educated through the Nai Talim system.

Some of the claims made above can be substantiated from my personal experiences. As a student, due to insufficient knowledge of English, I faced some difficulties in theory. However, in experimental physics I was treated as better than most of my batch mates due to the skill of understanding how a piece of machinery and its components work. Even though we never had any electricity in those days, I was able to understand the working and principle of working of electrical as well as some advanced electromagnetic optical apparatus. As an M.Sc. student, I had faced a challenge with an out of order apparatus for the Zeeman Effect, an experiment in atomic physics involving powerful electromagnets, high quality optically parallel glass plates and a special prism. It was not difficult for me to understand the repair to be done, which I carried out myself once I had received the instructions from my teacher.

As a teacher of physics I worked in a department with others. My Nai Talim background helped me to understand every situation better than most of the others. It should be recalled here an ashram life gives you a background of team work where co-ordination amongst every member of the team is of extreme importance. The college where I had worked had classes from 11th standard to post graduate level, all three streams- Arts, Science &

Commerce, with about four thousand students, over two hundred teachers and other staff members in a four storied building with only 15 class rooms. After studying the pitfalls of the system, I could propose radical changes in the time table of the entire college which was highly appreciated and implemented.

As a teacher, I was able to reach out the students much better than most of my colleagues due to the procedural understanding I had developed as a student of Nai Talim. I could pick up new knowledge from even my lab attendants as a habit due to the spirit of team work. This helped me to move forward even when in unfavourable situations.

I must admit that learning from artisans who did not have sufficient knowledge of the laws of natural sciences had its limitations. They could explain the reasons behind each step of the production, but were not able to give generalised rules that are so important in pure science learning. On the other hand, in the formal schooling system, it was/is the other way round. The laws and rules were very well taught without knowing their application in real life. (We often hear that the graduates today are 'unemployable').

The challenge before us is to link this knowledge with different areas in our life and put them in practice. First and foremost is identifying the fields where the action should be focused. As teachers are the people who will convert the concepts into practice, teachers' preparation is being given the top priority. In the content front, NCERT has done a commendable work in preparing the curricula and text books keeping in mind the needs of the modern world. What is necessary is to prepare modules of translating the knowledge into small and comprehensible units relating daily work in general and productive work in particular and preparing ground level teachers to use them. It has been proposed that teacher preparation has an initial stage of exposure to Nai Talim, followed by orientation programme and then assisting them in putting these in practice. It is necessary here to draw attention of all to the fact that it is necessary to have ashram type living, where sharing and team work is an essential ingredient along with productive work to make this scientific education socially and economically meaningful.

Work has already begun for the same. We need to turn this into a movement.

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