Weaving Uninterrupted: How Formal System Yielded to Informal Yearning

This is an extraordinary story not because Shanmugam solved a small technical problem and generated low cost high efficiency solution for many weavers. It is extraordinary, also not because a young wage labourer managed to seek admission in Diploma and then Degree Engineering course, because his talents impressed the gate keepers. It is extraordinary because a lab attendant saw the merit of a quest in the eyes of a young boy. The Principal then tested the talents of Shanmgam, a school passout with very average marks. Impressed by his talents he decided to offer him admission in Diploma Course without fees or donations and that too in Second Year directly. National Innovation Foundation awarded him in 2007. As if this was not sufficient, he wrote to the Chief Minister of Tamil Nadu seeking admission in Degree course of Engineering. And within a few weeks, Chief Minister's office not only communicated him the news of his admission in one of the best textile engineering colleges without fees but also with fellowship. How many such examples do we have in our educational system, when somebody's talents will let authorities make exception and that too for a labourer having no recommendations (except of an attendent) or connections? We salute the lab attendant, the Principal and even the Chief Minister of Tamil Nadu for recognizing the need to nurture innovative talent. We request readers to send us more such stories, in which innovators have been recognized beyond normal expectations by the formal system: Ed.

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Background

Shanmugam (28 yrs) hails from a weaver's family in Chinnappampatty village of Salem district, Tamil Nadu. Around two hundred families in this village earn their living by weaving and agriculture, growing cotton, sorghum and millets. He has an elder sister who is married and a younger brother, now a Diploma in Textile Engineering, working in the field of Textile Marketing. Since childhood he had an active interest in reading books rather than playing games and spent most of his free time in the village library.

His father, owned only one handloom to weave saris. He used to help his father and in the process always think about various ideas by which the loom could be improved. But he could not do much. After passing Higher Secondary, he was put as an apprentice with his uncle on daily wage basis. His uncle had 15 power looms. Here began his experimental journey. He worked with his uncle for three years. Most of the experiments he did were without the knowledge of his uncle. He would often repair the power loom whenever there was a problem. He never let the productivity decline and thus his uncle relied on him fully.

One of the problems he noticed was the need for an additional person to refill the shuttle with pirn windings of yarn. One pirn would have 1000 meters yarn for lateral movement or weft insert. He not only solved this problem but also got entry in Diploma College, and later degree college, all due to his talent.

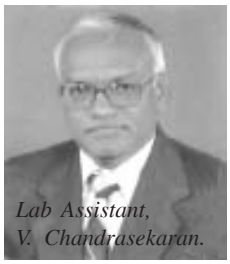
Genesis

He started experimenting at his uncle's power loom without his knowledge. Though he saw many failures yet he made sure that the

Alamelu & Subramaniam (Parents)

productivity was not compromised because of his experiments. He managed to repair whatever problem occurred, either due to his experiments or otherwise. Four years ago, SSM Institute of Textile Technology advertised in a local newsletter, about a training program in yarn dyeing under the Community Polytechnic Scheme. Shanmugam was interested in learning about new advancements in the textile industry. He applied for this six months long training program. There was no fee and the Institute bore food and travel expenses. Trainees were expected to stay in the hostel. His village was fifty km away from the college.

During the training, one day, he went to the weaving lab after his lunch and he started chatting with the Lab Assistant, V. Chandrasekaran. During their chat Shanmugam shared his thought to modify continued weft insertion system in power looms. Chandrasekaran was impressed with his innovative mind and took him to



Lab Assistant, V. Chandrasekaran.

the Principal the same day. Shanmugam presented his ideas to the Principal and HOD of weaving department. Initially, they were skeptic and did not accept his ideas. Somehow, he convinced the Principal to give him two days to prove his concept. Having got the permission, and the workshop facilities, he started improvement efforts in an old power loom, meant for training in the lab. He successfully proved his technique within one and a half day's time. In ordinary power looms, one has to change the weft yarn frequently, but by adopting the two weft cones with one pirn, one can weave up to 1000 m fabrics without changing the pirn windings.

Principal R Muthusamy

Breakthrough

Acknowledging and appreciating his innovative thinking, the Principal offered him direct admission in the Second Year Diploma course in textile technology. Though he had low marks in Higher Secondary, the college offered him the free seat from management quota. He was also allowed to start his work on the innovation as an academic project work, which otherwise is allowed for the final year students only.

Like Shanmugam, his younger brother was also working as a daily wager at their uncles' power looms after finishing school. Shanmugam's parents got excited with the offer by the SSM Institute of Textile Engineering, and they decided to educate their second child too in the same college. Later, Shanmugam's brother also got admitted in the same college and completed his Diploma. He is working as Marketing Engineer in a Coimbatore based Textile Company.

Shanmugam passed the Diploma exam with first class marks in 2007. In June 2007, he began his Engineering Degree with direct admission in second year, given normally to all Diploma students. His innovation was forwarded to National Innovation Foundation by the Principal of the college through Mr P Vivekanandan, SEVA, Madurai, a senior collaborator of Honey Bee Network. Accordingly it was documented for NIF's fourth biennial competition under students' category. Shanmugam was awarded with National second prize under general category (not just the students' category), by former President of India, Honorable Dr APJ Abdul Kalam at NIF national award function, 2007.

Later Shanmugam was interviewed by media and also felicitated by the local news papers and TV channels. Soon after, Shanmugam wrote a letter to the Chief Minister requesting admission through a free seat under B Tech program. He received not only an appreciation letter from Tamil Nadu Chief Ministers' Personal Secretary but also an offer from the Tamil Nadu Government to support his further studies. The letter from the Chief Secretary to Director Techncial, Education made a special reference to NIF award and included recommendation for his admission in one of the best private colleges, PSG College of Textile technology, Coimbatore. Accordingly, he was offered a loan of Rs. 45,000/- without interest, to be paid after getting job. The government also offered him a job in Tamil Nadu Handloom Weavers' Co-operative Society (Co-optex) as R&D Engineer even before completing the degree.

Mr Shanmugam also applied for Kishore Vaigyanik Protsahan Yojana (KVPY) 2008, a National Fellowship by Department of Science and Technology for students interested in research and got selected for the same. His life has now taken a very positive turn.

Innovation

With Shanmugam's technology, all shuttle looms can be modified in such a way that weft can be inserted continuously without frequent pirn change. Yarn from dobby (source of yarn hanging on the top of the loom) through two cones could now be drawn into single pirn without refilling the shuttle frequently. The weft thus would work up to 1000 meter continuously. Earlier, the pirn had to be refilled every five minutes.

Two weft cones stands are provided on the sides of the loom and they are specially arranged so that they have the capability of controlling yarn tension and electronic weft stop motion. The yarn from the pirn is only used to bind the weft taken from the cones, by doing so the expense on pirn winding is reduced. In this method weaving takes place by two weft threads so that the fabric is dense. Only the cones have to be changed. There is no frequent need to change the pirn up to one thousand meters as in rapier looms. Fifty per cent of the total warp

Have you ever tried to listen to the wisdom of your grand-parents? If so, share with us something inspiring, interesting and intriguing. Selected insights will be published along with the photographs of your grand parents. Other ideas are also welcome. Ed.

threads are lifted at a time and the remaining 50 per cent is kept down for the first pick and for the next pick the system is reversed. The heald frames are connected to dobby in such a manner that there is no collision in between the healds. The dobby mechanism can be used to select the weft colours as and when required. An additional hole is made in the shuttle to give proper tension of pirn threads which interlock the pirn from the cones.

Manpower and time needed for weaving have been reduced considerably because of obviating the need for frequent pirn change. New loom is less expensive and the maintenance can also be done easily. Half of the fabric could be weaved with one colour and the other half with a different colour, by keeping two different colour threads on both sides of the cones. By providing more

number of cones of different colours at the feeding end (selection of weft colours by dobby) a stripped or checked patterns could be weaved without drop-box mechanism. For wider looms this method is very much suitable. Small sectors in the country can increase their fabric production without any additional expenses. One can weave fabrics like cotton, rayon, polyester, and silks using this method in normal plain power looms.

Aboout 15 to 20 per cent productivity has improved in terms of saving of time for weft replenishment. Further, fabric quality obtained from this innovation is very good due to very few stoppages for weft replenishment. Coming from a weaving background Shanmugam wants to develop many more low cost technologies for traditional weaving community so that they can upgrade their life style. It seems that Government, for once, has made no mistake in spotting the talent, and responding to his career growth. It is to be hoped that he will continue with his creative and innovative pursuits.

Inspirations Personified

Shanmugam's success is a tribute to optimism and spirit of struggle among the grassroots innovators - so rich in knowledge but so poor in resources. This mention would be incomplete without appreciation for the 'resourecful' people who went out of their ways to ensure that Shanmugam gets his due recognition, position and respect.

Modest Beginning

Shanmugam's father worked as a weaver, earning a paltry sum of Rs 500-1000 per week. His mother is a housewife and rears animals. After his schooling, in order to assist his family financially he started to work at his maternal uncle, Mr Kannan's power looms at the compensation of Rs. 100 per day in the same village.

Innovative Spirit

From a very young age Shanmugam lived on the concept of 'What, Why and How' and reflected signs of determination and power of thinking. He was always interested and participated in Science and Technology related programmes. He started learning the techniques of power looms since the age of 13 years so much so that within 3 years he became an adept in it. An innovator would always and everywhere be an innovator. Shanmugam tried his hands at agricultural experiments also!

Defining People

A boy who had to start earning after schooling managed to do Diploma and then B.Tech. The credit of his success goes to his perseverance as well as to the compassionate people who helped him in the following ways:-

- Mr V P Chandrasekar, Lab Assistant: Encouraged and helped him to show his talent to the Principal
- Mr Muthusamy, Principal: Gave him admission and fellowship
- College Authorities: Provided him a free Desktop Computer
- Teachers: Sponsored money, books and memento.
- Kannabiran Mills, Coimbatore: Sponsored him Rs.5000/- and offered him a Supervisor job in company
- Mr Karthick Madhavan: Hindu reporter from Erode published an article on him
- General Manger, Canara Bank, Coimbatore: Opened an account for him and deposited Rs.200 as opening balance on his behalf.
- Mr Vishwanath Shekawath, Textile Secretary and Joint Secretary: Helped to take his case to the Chief Minister
- Chief Minister and His Personal Assistant: Helped him in getting admission to B Tech.
- Mrs Nirmala, I A S, Managing Director, Co-Optex offered Rs.47,000 as scholarship
- SEVA helped in documenting his story.