

Technical Education for Rural Development Case Study

*S.S. Kalbag, Vidnyan Ashram, Indian Institute of Education, Pabal, Dist. Pune.
Vidnyan Ashram is a Centre of the Indian Institute of Education, Pune. Funds for this work have been granted by the Department of Sciences' Technology, Government of India, and from donations by Hindustan Lever Ltd. The site has been given on free lease by the Government of Maharashtra.

There have been attempts at using schoolteachers, particularly primary school teachers, for social & development work. Such proposals assume that (a) the primary teachers are competent to do the development work, and (b) they have the time to take the additional responsibility and still do justice to the prime responsibility - education. While the above idea may not be feasible or even desirable, the idea of integrating education with developmental activities has been widely accepted.

Development integrated with education could make valuable contributions to educational systems by bringing relevance, pragmatism, and coordination of the head and the hand. After all, the modern science is based on this and perhaps it is our inability to use the hand to stimulate thought that has made India lag in development.

Nearly 90 per cent of our population lives by hand mainly; and even most of the remaining 10 per cent use the head and the hand alternately rather than synergistically. Can we reach the mind through the hands for the 90 per cent who live by their hands? Can they learn by doing?

Education Integrated with Development

"Learning by Doing" is not just on-job training; nor is it only learning ' how to do it". It is using physical action to develop visualisation and other mental skills, even while developing physical skills. All intellectual activity is made up of two parts - information storage and retrieval and information synthesis or processing. It is every one's experience that we remember and recall more easily what we have done or experienced than what we have read or heard. Particularly physical experience helps us visualise better than written or oral word. And ability to visualise is fundamental to both creativity and planning, and generally for all intellectual activity.

Thus we want to develop a system of education based on physical activity, which will stimulate the intellect and which can at the same time produce economic gains. We will therefore try to integrate in a single activity development of the mind, manual skills and rural development.

This kind of education will promote awareness of social and national needs, and involvement in the development of one's own region. It should also reduce the cost of both education and development and at the same time make technical services available to sections, which normally do not get them—all this while raising the level of skills of the rural youth.

Our Experience

We have been operating a centre, where we are trying to evolve such a system. The main features of our system as now operating are: (i) learning by doing; (ii) problem-solving orientation; (iii) earning while learning; and (iv) community paying for services rendered. The important areas we have identified for development through education

are water resource development, low cost construction, workshop services, agriculture, and animal husbandry.

Our project area is Pabal, a village which is about 60 km. from Pune, which lies in the rain shadow region of the Western Ghats and is hence drought prone. It has a population of 3,000 in the village and another 7,000 in the communities around. It has electricity, a high school, and a few doctors, though not all qualified in modern medicine.

As part of the water resource development activity, the boys carry out land surveys, using plane table, dumpy levels, theodolite, etc. They monitor water tables; make observations relevant to local hydrogeology, and make vertical electrical soundings for prospecting for groundwater. All these are available as a service to the community, which is using it and pays for it.

All the construction on our campus, the residential, office, workshop, etc. - almost everything – has been built by the trainees. The constructions are all experimental, of different types, such as soil cement blocks, Ferro cement, corrugated sheets with insulating panels, and soil-cement concrete. A low cost house unit with 240 sq. ft. area having attached bath, WC with septic tank, wash basin, water tank, piping electricals, etc.—such a house costs us approximately Rs 9,000 including materials and labour. The trainees have also made sinks, washbasins, WC pans, and water tanks of Ferro cement. We are experimenting with the construction of two types of biogas plants of Ferro-cement construction. We have not yet extended construction service to others as we are still proving the same to ourselves.

The workshop trainees provide repair and fabrication service to the community and get paid for it. They get jobs on repairs of bicycles, tractors, trucks, agricultural implements, poultry cages, feeders, etc. We even had a tanker of the Irrigation Department for repairing a leak. It was bringing drinking water to the village last summer. They have fabricated racks, tables, chairs, stools, school desks, window frame, grills, school stage, and all angle iron construction of our housing. We are now trying to make a geodesic dome for low cost housing. Even such jobs as threading pipes for pump sets, which we do now, had to go to Rajgurunagar, about 20 km. away. We have built hand cart-cum-bicycle trailer, and now a pneumatic wheeled bullock cart, which we have costed at about Rs 3,500 equivalent to a conventional one. It is easier to pull and we are now field-testing it. There is scope for windmill generators as well as pump sets; also for diesel and petrol engines but we do not have the trainers for them.

In agriculture, we are concentrating on drip irrigation, for high value crops, pest management, and social forestry. Pest management is given as a service for a fee, but the others are only for collection of experience and data. We would like to use the scarce water resource for getting the best value and are trying hybrid tomatoes, seedless grapes, strawberries, etc. We are testing a kit for soil analysis but are not sure of the cost-benefit ratio from this service.

In the animal husbandry field, we have not been very successful with cross bred cows, but we have good hopes for the cross bred goats (75 per cent Saanen) which we use for natural service and artificial inseminations to the local goat population for a fee. We have done about 300 inseminations in approximately one-and-a-half years. We are collecting first hand data on the progeny from these male goats. We are also giving training in poultry and already many have kept poultry in cages on trial basis and use both battery and deep litter systems. Our workshop has made the cages and feeders for them.

What Next?

The teachers of the new system are themselves products of the old system. Retraining of our-selves to be teachers in the new system is a slow process and this handicap is going to persist for some time.

A new system such as is proposed here cannot be designed and implemented on a schedule. It has to be evolved while being implemented. Not only we have to evolve the course content on the basis of local development needs, but at the same time identify the basic "knowledge bricks" and skills that will be relevant everywhere.

We integrate not only intellectual development, manual skills, and regional development, but also personality development. It is not generally realised that lack of discipline, frugal habits, tidiness and many personal traits from poor training in the childhood are a basic cause of not only economic loss but also for not being able to afford many daily consumer goods. The Scout-Guide movement is based on similar principles as our own and aims at developing personality and leadership. Scouting should therefore form an integral part of such an educational system.

Any educational system in the present age will soon be out of date, if it does not provide for self up dating. To this end we are building links with institutions of "progress"-the research laboratories, the universities, and the modern technology establishments. We have visiting advisors, who can try their professional skills in a new scenario. Hopefully, the rural problems and opportunities could give them some new openings or directions in their professional career.

We are trying to build a prototype institutional structure that will have links with technology establishments on the one hand and rural development agencies on the other. They will also provide technical services in the rural area and be better educational centres for that.

We are evolving a rural technology course for rural technical schools which will be aimed at providing a package of skills and attitudes which students will find relevant in their future life. After the school, some of the students may want to specialise in any one of the areas, and during such post-SSC training, they will be guide or trainers for the 8th, 9th and 10th standard students.

The technical education/development centres will not only be centres of all-round development but also be channels for introduction of new technologies or designs in the rural areas and be centres of innovations. They should open educational opportunities for the masses who have dropped out of the present book-based system.