

FOREWORD

Almost a quarter century ago, we at Kishore Bharati in Village Palia Piparia, Hoshangabad District, Madhya Pradesh, received a visitor who introduced himself as a senior scientist working with a well-known multi-national company in Mumbai. It was Dr. S.S. Kalbag. He was on a 'pilgrimage' to study and learn from our Hoshangabad Science Teaching Programme (HSTP), then functioning in all the 300 odd government middle schools of the District. Three days later, as he prepared to leave, he sat down with us to share his observations. Although impressed with the scientific philosophy and child-oriented pedagogy that guided the HSTP curriculum, there was something amiss, he frankly observed. He felt that the science curriculum evolved by us was not linked with the real life needs of the rural children and did not address the issues of development, just as the prevailing text book-based curriculum rooted in rote learning fails to do. He wanted to include in his future work all what we had done but begin where we had stopped – that is, *go beyond HSTP*. Having resigned from his high profile career in Mumbai a few months later, Dr. Kalbag shifted to the Village Pabal in Pune District, Maharashtra and set up his Vigyan Ashram. During the next two decades, he managed to transform Pabal into a new pilgrimage centre of education bubbling with radical ideas for 21st century India.

A superficial study of this collection of papers by Late Dr. Kalbag may lead one to falsely conclude that the aim of the Pabal experiment was to develop pre-vocational or vocational courses only. Such a conclusion would not only be unfortunate but will also amount to an unfair "reductionalism" of the theoretical foundation guiding Pabal's intervention in school curriculum. A deeper reading will bring out the basic concern that "good education has to be based on diverse experiences and, for this, real life is the best educator." While discussing the place of Piaget's theory of learning in his work-based curriculum on rural technology, Dr. Kalbag is persuaded to observe, "The process of learning cannot be expedited by receiving information from others. Where the prerequisite structures or concepts are not formed, we cannot teach anything based on these concepts. . . . If at this stage, we pressurize the child, it will adopt a self-defense mechanism of reproducing to us what we wish to hear, without really understanding it. This is the beginning of rote learning."

Imagine Mahatma Gandhi, the undeterred proponent of learning through productive work, visiting Pabal's experiment in late 1990s when the programme was operating in forty government schools in Maharashtra as integral part of the school curriculum. What would he have seen? He would have seen a group of girls from Class X building a 6 KVA-welding transformer, another batch of girls testing the blood groups of other students or a group of boys building two latrine blocks for the school. He would have further seen girls building a water tank and doing its plumbing. Before he is surprised, he would have found boys and girls together building a workshop shed of 900 sq. ft. (and costing it too) or making wheelbarrows and classroom benches for the school or the community. Another batch of girls would have shown Gandhiji how they made a cement slide and fabricated a steel seesaw and merry-go-round for the children of the local Balwadi. The work does not remain restricted to doing things for the school alone. Nothing would have pleased Gandhiji more than seeing senior girls doing hemoglobin estimations on primary school children and advising their parents on diet correction or examining drinking water samples for microbiological quality or even holding vaccination camps for poultry in different hamlets. The students would be visiting farmers' fields and measuring 'earth resistivity pattern' to advise where to access groundwater for irrigation.

And all this going on, not as extra-curricular activity, but as integral to the main school curriculum where each experience becomes a source of knowledge, values and multi-skills.

Having seen all this, Gandhiji would be expected to exclaim with joy that this is precisely what he had said at the Wardha Conference in October 1937. He would be inclined to recall the following statement made by him 70 years ago,

“ instead of merely teaching a trade or a handicraft, we may as well educate the children entirely through them. Look at *takli* (spindle) itself, for instance. The lesson of this *takli* will be the first lesson of our students through which they would be able to learn a substantial part of the history of cotton, Lancashire and the British empire. How does this *takli* work? What is its utility? And what are the strengths that lie within it? Thus the child learns all this in the midst of play. Through this he also acquires some knowledge of mathematics. When he is asked to count the number of cotton threads on *takli* and he is asked to report how many did he spin, it becomes possible to acquaint him step by step with good deal of mathematical knowledge through this process. And the beauty is that none of this becomes even a slight burden on his mind. The learner does not even become aware that he is learning. While playing around and singing, he keeps on turning his *takli* and from this itself he learns a great deal.” [emphasis added]

- Excerpted from the address by Mahatma Gandhi
at the Wardha Education Conference, 22 October 1937
[Translated from Hindi, *Hindustani Talimi Sangh*, 1957, pp. vii-viii]

This historic vision of educational transformation received only lip service from the rulers of independent India. The colonial system of education was founded on dichotomy between work and knowledge. It has had an hegemonic impact on the thinking of the ruling class in post-independence India since it reinforced the Brahminical tradition of separating manual work from learning and *vice versa*. This is what Gandhiji had challenged though his Basic Education programme. By 1960s, essentially all the institutions that came up soon after the Wardha Conference to promote the Gandhian conception of curriculum gradually lost their direction and dynamism and were ultimately absorbed by the mainstream system. Herein lies the significance of the emergence of Dr. Kalbag's work during the past two decades as it explored the Gandhian idea afresh. Without claiming as much, Dr. Kalbag quietly but steadily re-interpreted the Gandhian pedagogy of linking work with knowledge in contemporary economic, technological and socio-cultural framework and demonstrated how it could become a powerful means of curricular transformation.

The papers presented here consistently underline Dr. Kalbag's deep concern for scientific philosophy and the method of science. Look at his observation, “. every measurement is an approximation; no measurement is absolute.” No question of philosophical value was outside the scope of learning through work, as far as Dr. Kalbag was concerned. The discussion on text books in one of the papers leads him to raise the issue of “the usual distinction between distance and displacement” wherein distance is routinely “taught as a scaler and displacement as a vector.” He builds up a logical case for maintaining that “distance is always a vector” when you look at distance in a three-dimensional space. The critical point is not whether he was right in such views but that such theoretical issues were integral to the work-based curriculum Pabal has promoted (or at least aims at promoting) for the school system of tomorrow's India.

Apart from being a scientist and educator, Dr. Kalbag was both a sensitive and intense person in the best sense of these terms. I would contend that these values of his personality were critical elements of his pedagogy that enabled him to evolve a radical vision of education. Otherwise, he would have made compromises at a much earlier stage of his work. I recall a meeting at the Indian Institute of Education at Pune when he broke down, just as a child would, in the midst of academics when some of us questioned his approach to introducing information technology in village curriculum as being premature. He explained later that the villages would be left behind if they don't get access to this technology. Time has shown that he was correct but probably ahead of his times. He contended that "we need to develop courage to act on our convictions and be willing to pay the price." His work at Pabal is a living testimony to this conviction and his early demise, probably, is the price he paid.

Had he lived, I would have liked him to pursue two additional curricular issues. One, like the scientific framework, it was important that Pabal also included framework of other disciplines, especially social science and linguistics, in developing the work-based curriculum. This would have made the curriculum holistic. Two, while learning from work and experience is invaluable at early stages of learning and it constitutes an essential entry point for the majority of our children, it can't be promoted as a substitute for learning from the accumulated human knowledge as the child advances in both the age and maturity. Often, in our over-enthusiasm we make this unintended mistake. There is plenty of evidence in Dr. Kalbag's papers that he was acutely aware of this limitation of work-based learning and, therefore, he raised philosophical issues of great import as part of his pedagogy. However, what Pabal needs to do now is to define these limits in curricular terms and develop the path to move *from experiential knowledge to theoretical knowledge*.

In a recent study, NCERT's National Focus Group on "Work and Education" (September 2005) has also reinforced Dr. Kalbag's views on the pedagogic role of productive work and social action in acquiring knowledge, developing values and building generic skills in a futuristic curriculum. The Gandhian conception of education is beginning to make fresh sense again. However, the global market forces are doing their best to undo all this by *reducing this vision to mere vocational education*, the importance of vocational education notwithstanding. This trend is evident in Planning Commission's approach towards XI Plan which talks uncritically of the need to build a "skilled work force" for the global market. Dr. Kalbag in these papers strongly resists this "reductionalism". The character of the future discourse on education will be determined by our collective will to build up on this resistance, both in theory and in practice. The aim of education is to build a conscious citizenship for a truly democratic, egalitarian, secular and enlightened India, *not a subordinate market and source of cheap skilled labour for global capital*. Such reconstruction of educational agenda will be our highest tribute to both Gandhi and his indomitable disciple, Late Dr. Kalbag as well as to the unfinished task at Pabal.

19 April 2007

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