

INDUSTRY : INSTITUTION INTERACTION IN ENGINEERING EDUCATION

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INTRODUCTION

India is now a part of the global free market economy. This has posed a challenge to every industry and institution in that there is immediate need to implement strategic plans to meet the new demands made on them by competition, pressure of change, and consumer control. There is need for an integrated approach to training of professional engineers and managers for industries by close interaction between training institutions and industrial organization. The manner in which this objective can be achieved is discussed in this paper.

TRAINING NEEDS OF ENGINEERS

The issues of engineering training have been examined by many writers 4,8,10,12 earlier. Their knowledge, attitudes and skills have to match the needs of changing times. Continuous learning has to become a way of life. There is also need to learn how to manage time, energy and attention in alignment with priorities and goals. The need for such integration has been emphasized in engineering education (Schowalter 1991.)

In the context of global markets

Flexible Batch Manufacturing (FBM) will provide the most effective match to many of the fastest growing markets (Manley 1992). Flexibility and innovation will be its characteristics "which will depend upon the availability in continuity of enough adequately trained people. Presuming they exist, skills will need to be continuously updated and developed" (ibid).

Industry-Institution interaction is essential for achieving this goal. Joint research projects with academic institutions have a tremendous potential for industrial innovation because these are not restrained by the organizational culture of the industry. Industry-Institution interaction also ensures a continuous inflow of intellectual personnel and develops a good source of potential employees for the industry. Today, we need multi-disciplinary engineers with a business understanding.

Such training can be implemented only by the close collaboration of industry with the engineering colleges and Institutes of Technology. (Wakhlul 1989) has given a curriculum for such a training programme. This needs to be implemented now. Continuing education, training and retraining will be required to fulfill this task for a career.

The need for **team work, communication and interpersonal relationships** will be a more critical training input in the future. This can be best achieved by close interaction of Industry and technical institutions in the actual setting of the industry.

ROLE OF INDUSTRY IN HUMAN DEVELOPMENT

If integrated wholesome development of professional engineers is to be achieved, then it is imperative that critical inputs into the design of curricula must be given by the industry.

(Ashok Raj 1993) has highlighted the deficiencies in 'Engineering Education' today. His observations clearly highlight that the deficiencies are caused by the **absence of continuous and sustained professional interaction between the engineering colleges and industry**. This feedback is timely and critical and situation demands immediate improvement and rectification. In this context the role of Human Resource Development (HRD) by the industry assumes significance.

The industries are now geared up to develop the potential of its employees to the fullest extent both for individual and organization growth and well-being (Rao, 1988). Human development is seen as a continuous effort in a planned manner to acquire or sharpen their **skills, knowledge and attitudes** required to perform various functions connected to their present/future roles. Many industrial organizations now have proper Human Resource Development (HRD) Divisions for developing and empowering employees to perform optimally within the organizational environment.

Whereas, these HRD Departments ought to maintain a close contact with the training institutions for engineering and management, the situation is far from this. There is no formal or informal interaction between the industry HRD Departments and the academic institutions. This has created a wide gap in their respective perceptions about design of curricula for engineering; and design of in-house training programmes for industrial employees (Wakhlu, 1984). This situation can be remedied by a close collaboration between industries academic institutions and professional societies acting together in equilateral harmony.

ROLE OF PROFESSIONAL SOCIETIES

Professional societies like Confederation of Indian Industries, the Institution of Engineers (India) and the Indian Society of Technical Education, National HRD Network and many others play an important role in the professional growth of its individual and corporate members through continuing education and networking. The need is to bring about a task oriented teamwork between them so as to achieve the national objectives of :

- Innovative technology sustained by continuous improvement;
- export promotion;
- excellent human development;
- enhanced productivity;
- customer delight through quality; and
- higher performance in every sector of national economy.

Professional societies could - together with the industry and academic institutions all working together - ensure wholesome development of professional people for industry and other areas of employment. A beginning has been made by a few industrial concerns like Larsen and Toubro, TISCO and others in collaboration with ISTE (1993). The following recommendations are already before the All India Council of Technical Education (AICTE) for implementation at the national level. The AICTE is a National Statutory Authority and ought to take a further lead in implementing the programme without delay.

- . A time bound plan for AICTE to facilitate networking of institutions with industry and enabling exchange of faculty between institution and industry.
- . Staffing pattern must be such in engineering colleges that 30% to 40% of faculty could be hired from the industry.
- . 3-5% of the salary budget be earmarked in the Engineering Colleges for HRD;
- . Networking and cascading between Institutions, industry and engineering departments be encouraged and developed.
- . A time bound plan for introduction PADS (Performance Appraisal and Development System) in every engineering college be taken up.
- . Government should finance industry-institution partnership and allow faculty to act as part-time consultants to industry.

. Engineering colleges should involve personnel from industry in curriculum design and renewal, teaching and evaluation, and strategic planning and development.

It is a heartening development that the Government of India, Ministry of HRD has announced (Feb. 22, 1995) that the industries can now set up Private Universities to run academic programmes. UGC guidelines in this respect will be available shortly. With such a fundamental change in the outlook of the government, it is now for the professional societies, academic institutions and the industry to grasp the initiative and begin taking steps as outlined above. The need is paramount and objectives laudable. What is required is extraordinary leadership for implementation of an action plan. The Confederation of Indian Industries, India is also taking a lead in this direction.

CONCLUSIONS

The idea of Industry-Institution Interaction has been discussed for the last thirty years (Institution of Engineers (India), 1965). There is no dearth of workable ideas. However, the urgency for making this to happen has never been as great as it's now. We must move fast or else lose the race completely. Compulsions of the "global market" may yet help us to achieve the objective of establishing permanent linkages between industry and engineering colleges for Wholesome Developments of Professional People (WDPP) for excellent performance, higher productivity and joyful work in industry and other sectors of the economy.

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