

A NECESSARY SHIFT IN CURRICULAE FOR TECHNICIAN EDUCATION COURSES

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With so much of erudition around the curriculae for technician education, it does not give an identity to the Diploma passouts. Time and again the courses are labelled as mini or diluted degree courses and such statements are not far from the truth. In past, much has been stated and talked that the technicians should have their own identity on the field, in the jobs however the situation remains same as it existed before independence i.e. the diploma holders are treated as second rate engineers on the job and are deprived of vertical mobility to a great extent. The woe of most of the diploma holders in their mid career is that though they have capability, which they earn out of experience on the job, they can not move vertically up because they do not possess a degree.

It is readily agreed that the technicians should possess skills which should be distinct than those possessed by the craftsmen and technologists. It is sad that no deliberate attempts have been made till today to identify skills needed by the technicians making them distinct than those for the technologists.

Role of Technician in industry in our country :

The role is generally to supervise work being done by the skilled workers in industry or on field. They are responsible to check the quality of product or construction.

They are expected to have an insight and skills to guide the skilled workers in industry. They are to coordinate the process, make measurements, maintain accounts, prepare estimates, get the work done as per laid down instructions and specifications.

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The technicians are not to prepare designs nor they are supposed to conceive projects and prepare their proposals. They need only knowledge of basic concepts in technology which should only help them to execute the work assigned to them. They should be able to solve problems which are met in the field (not of complex nature). They are not supposed to find solutions to theoretical design problems which should be, in all fairness, expected from a technologist.

Curricularae for Technician Education Courses :

The present technician courses traditionally lay more emphasis on class room instruction i.e. teaching theory and much less emphasis on practice i.e. for experimentation and for getting feel of the field work. In spite of proliferation in number of polytechnics and technician courses, due attention has not been paid to develop curricularae which should attempt to make technicians job special and thus elevate his/her status.

The class room instruction still enjoys prime position with the result that, in the polytechnics, which were set up even 3-4 decades before, the laboratory set up is still inadequate and the utilisation of equipment, whatever is available, is very poor.

The technician courses are unnecessarily content heavy with less emphasis on practice. The polytechnic administration and the teachers are generally happy if the syllabii are

covered in the class rooms and are not unhappy if the work in the workshop, field or laboratory is not taken up seriously.

It is not an unusual sight to see that 10-12 students are assigned an experiment in a laboratory or are assigned a job in surveying. A few do the work, others take it easy.

The students take more pains to pass the theory examinations and much less efforts are put in to pass the practical examinations. This is true to a great extent and the trend has to be reversed if polytechnic passouts are to gain status in the industry and society.

It is high time that a close look is taken at the curricularae. The word 'curriculum' means all the experiences that are met with by the student right from the day he/she enters a technical institute or any other educational organisation till the day he gets out of it with a certificate.

The pertinent questions that can be asked are :

- (i) Are our curricularae need based ?
 - (ii) Are they capable of giving an identity to a diploma pass out?
 - (iii) Is polytechnic pass out acceptable to industry?
 - (iv) How much a polytechnic pass out learns on the job?
- A fact is that the industry employs

the polytechnic pass outs and it moulds them to their needs. 'On the job learning' helps the pass out more to perform in industry than what he gains during his stay at a polytechnic which just provides him/her with a broad/vague background about industrial practices.

Considering the role of a technician a big shift is necessary in curriculum design. This shift can be stated in words as "More emphasis on practice than on Theory".

Practice and Theory :

'Practice' can be defined as the work which has direct relation with the activities which a diploma pass out is entrusted with when he gets employed. Basic theoretical concepts and principles which are required to support the practice can be called as 'theory'.

When we consider the experiments that are carried out in the laboratories to understand concepts and principles, these can not be called as 'practice'. Such an activity only supports understanding of theory. Similarly when a diploma student is learning Engineering Drawing, the time he/she spends in the drawing hall, can not be labelled as 'practice'.

A project carried out after learning surveying or an estimate prepared for a new building should be called as 'practice'. Similarly, if a student is asked to list down material alongwith quantities required for a construction such an exercise will come under 'practice'.

Analysis of present curriculae would reveal that we expect students to devote hardly 15-20% of their time during the course to 'practice' which in effect means that they spend 80-85% of their time learning theory. This imbalance needs to be removed without wasting any more time. It is imperative that 'practice' is given more importance than theory in the technician courses.

Curriculum Development Process : Present state of Art :

By and large, the process that is adopted to develop curriculae is to ask different course (subject) teachers to provide syllabus for the course they teach which put together becomes the curriculum for a diploma course. Generally, aims of a course are not defined. The process normally is from parts to whole and not from whole to parts. Needless to point out that skills and knowledge, with proper balance, are not identified for a diploma passout to develop a curriculum. Generally no questions are raised at present by the industry on the quality of outcomes (Diploma Passouts); hence, there is no pressure on the technician education system to improve on curriculae. This may be one reason, why stale traditional process of developing curriculae for the technician courses has not yet met with a challenge from the industry. However, the time is not far off when such a process will be questioned by the industry.

To meet such a challenge and to give a position and status to technician

in industry both i.e. technician education system and industry will have to work together. Primarily onus to do this is on the system and then next on the industry.

Curriculum Development Process; A Better Vision :

In the process, the industry should be made a partner to make decisions. It would be worthwhile to point out here that though number of suggestions would come forth from industry, it would be the responsibility of the concerned person in technician education to sieve the information to be incorporated in the curriculae.

The following steps should be helpful in preparing curriculum for a course :

- 1) Identify aims of the course. The aims should define the outcome.
- 2) Identify basic knowledge and skills to be acquired by the student.
- 3) Work out structure of the course based on aims, knowledge and skills to be developed.
- 4) Make a distinction between learning in the institute and on the job learning (All knowledge and skills cannot be imparted in the technical institutes because of time constraint and other factors).
- 5) Each subject curriculum should

specify skills and knowledge in terms of objectives/abilities to be seen in the students.

- 6) The curriculum should have in built flexibility to some extent to allow students to learn subjects of their choice.
- 7) The course curriculum document should be comprehensive enough to be used by the teachers as well as students without any ambiguity. It should clearly specify what student is going to learn, how he/she will be assessed etc.

The crux of the process lies in identifying distinct skills which students should acquire during a course to become successful technicians on the job. To develop such skills, sufficient time will have to be provided for 'practice'.

At present the above mentioned steps are not taken consciously and the traditional approach is adopted without much thought given to the needs of industry and also of society. The process can be vitalised and should be vitalised to fulfill the needs.

The "Shift" Implications :

Moving away from traditional approaches, for a better cause, has always been a difficult process. A beginning is necessary for any change. In case of the 'Shift' proposed in the paper i.e. more emphasis on practice than on theory in technician courses, all concerned will have to make up their minds firstly to accept the concept and then for action.

The human and physical resources will have to be developed and deployed for the 'shift'.

It may be that diversification in the courses will be necessary to make the idea practicable. Such a change if envisaged would mean total change in the outlook of the teachers because then, most often they will need to move out of the classrooms to conduct 'practice' sessions.

Such a shift would also mean procurement and more utilisation of physical resources, getting up laboratories and shops, innovative exercises for 'practice' sessions, taking students near to field or industry in simulated situations.

The 'shift' is necessary in the interest of technicians, industry and society. The author of this paper thinks that we have talked a lot about establishing identity for technicians, let us now aim at the shift and do it.

Summing up :

The shift as explained above in the curriculae is only a first step in aiming at better product from the technician education system, which will be more useful to industry. Many more effective steps will have to be taken to implement the curriculae which will have bias towards practice than theory.

It is hoped that the 'shift' as proposed would provide a distinct identity to a Diploma passout and establish him/her in industry with a status and with better opportunity for moving up in his/her own speciality. The Diploma passout would then be proud if he/she is addressed as 'technician' rather than as 'sub engineer'. With industry as a partner, this can be achieved.

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