Collaborative Learning

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I am glad to be here in this wonderful Seminar arranged by our Ramakrishna Mission Students Home at the inauguration of the New Centenary Building of the Polytechnic. Within a short time our *Secretary Maharaj Swami Deshikatmanandaji* has managed to make the Polytechnic vibrant with new ideas.

Technical Education & Training (TET) has always been a **complex subject**. General streams offer classroom chalk talk method with a few labs to create learning atmosphere but TET is complex due to emphasis on practicals involving workshops and labs along with theory taught in classrooms. Like general streams we can't consider ITI, Polytechnics & Engineering Colleges to be in vertical mobility structure. They have their separate domain of expertise. So in a Polytechnic there is usually a hiatus between what lecturers with BE background teach and what Instructors with ITI background train. While trying to create lateral entry to B.E. after Diploma the syllabus has become more theory based thus contradicting the philosophy of 60 - 40% relation between practical & theory for polys. Our Diplomates complain of being neither here nor there when they go to Industries. The rise in number of Engineers is also affecting career prospects of Diplomates. How can we make our system more answerable to the needs of the market is the question.

- Collaborative learning is one of the answers to the problem. Various stakeholders have to come together to create competent technician who can be gainfully employed.

Industry Institute Partnership has the greatest scope for collaborative learning. As a matter of fact some of the best Technical Institutes in the country are run by Industrial houses like *L & T, Usha Martin, Tata Steel,* etc. In other cases such symbiotic relation is in place which includes

Institutional:

1) Consultancy & Testing
2) Manufacturing & Installations
3) Research & Development
4) Repairs & Maintenance
5) Corporate Training & Retraining 6) Workshops on topics of interest

While Industry provides: 1) Training & Placement 2) Study visits
3) Tutorials & Seminars
4) Project Work

Industry Institute Partnership mainly depends on the initiatives taken by the Institute authorities.

- **Institute - Institute Partnership** is another avenue for collaborative learning. Institutes located within reasonable distance can provide their Laboratories & Workshops for the use of other Institute who do not have them. Faculty exchange is another method. Inter Institute Co-curricular activities add to the personality development of students.

- **Interdepartmental interaction** is the need of the hour as the role of a technician becomes multidimensional needing multidisciplinary approach. Electrical technician needs Mechanical inputs & vice versa. Mechatronics is in demand.

- **Projects** aimed at developing complete solutions by inter-disciplinary students involving

analysis/design/deployment stages can help in comprehensive collaborative learning.

- Computer based **simulation** & modeling tools give chance for students to get together and explore a variety of scenarios in analysis and design stages.

- Another method for creative learning is **reverse engineering**. Usual method is to teach & then implement but it is more effective to show a gadget, even dismantle & reassemble, explore technology, engineering, applied science and then science in that order. This needs a close interaction between Institutes & other stakeholders.

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- A student learns a quarter each from teacher, fellow student, his own intelligence and experience in due course. Commitment of the management to excellence, dedication of the teachers, passion of the students to learn and active support of guardians will work together to create a competent student, proud of his profession.

- Before the British came to India our ancestors lived in self-sufficient villages of **entrepreneurs**. Though tradition played a big role in developing artisans self-sufficiency through collaboration within different communities was prevalent. Entrepreneurship creates a great incentive for collaborative learning. When a student sets a goal of Self-employment he gets motivated to learn life skills from any possible source. Unless a demand is created within the student community for learning, no collaboration is effective. Inputs are needed in entrepreneurship from level of school education and a systematic approach to the task of creating entrepreneurs by motivation, knowledge of economics, business and market has to be taken up.

- **Learning to learn** is an art by itself. Most of us see various phenomena happening but hardly notice the principles or values behind which make them happen. Only a Newton infers gravity in a falling apple, rest of us eat that apple without much ado. Student has to learn from Nature, which is the greatest of the teachers and collaborator.

- So is history Technical history of India is still out of reach of our common student. As if we learnt Science Technology from the West, we forget over **glorious past** of *Aryabhatta, Panini* and others who contributed to the world thought much before the Europeans.

- In conclusion collaborative learning is a process where Guardians, Teachers, Management, Industry collaborate to create a competent technician out of a interested student who is willing to think, act and work through continuous learning. It is to push the student to his ultimate perfection by challenging situations undertaken voluntarily.

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A paper presented at State Level Seminar **"Polytechnic Education for Emerging Technology"** on 8th December 2006 at Ramakrishna Mission Students Home Polytechnic Chennai in the session **"Methods of Teaching Learning Process"**.