AC 2011-760: FACULTY DEVELOPMENT IN THE NEW GLOBALIZED ERA THROUGH INDUSTRY-ACADEMIA PARTNERSHIP

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Faculty Development in the New Globalized Era
Through Industry-Academia Partnership

Abstract

The Academic Staff College (ASC) at VIT University in India is emerging as a Centre of Excellence that caters to the training needs of newly recruited as well as in-service faculty of the University. It was established as a nodal centre to coordinate all the training programs and it caters to the training needs of the faculty who are expected to function as leaders and managers in the classrooms and laboratories to meet the challenges of internationalization and globalization of education, especially technical and engineering education..

The mission of ASC is to provide continuous training that is effective, efficient, empowering faculty to become truly motivational in the classroom. The ASC fosters critical and innovative thinking among its engineering and technology faculty and has aligned itself to the 21st Century Learning Skills. The Academic Staff College encourages innovation and creativity among its faculty and supports the introduction of new pedagogical methods and new learning approaches in delivering instruction. It has positioned itself as a forerunner to bring about the paradigm shift from "teaching to learning."

New initiatives with particular reference to WIPRO's Project 1, an academia industry partnership between WIPRO, a global IT and Engineering Enterprise and VIT University has produced a metamorphosis in the teaching learning process at the University. Individual learning has been replaced with collaborative and group learning; lectures have been complemented with role play, simulation, word games and group activities, and with many alternative learning approaches. The Academic Staff College has made a giant leap forward in providing the right kind of platform to the faculty wherein the faculty experiment, create, innovate, improvise the Teaching-Learning process and share all their success stories of the classroom strategies and thereby help the faculty community to reenergize and revitalize them to face the daunting challenges of the 21st century learners. The mission of its faculty development programs is to empower the faculty so as to elevate the teaching learning process to new heights to ensure that the faculty no longer remain a mere spectator to the revolution happening in the Global Education Scenario, but become active partners in the process

The paper will present some of the new pedagogical methods and learning approaches used in delivering instruction and some specific examples implemented by the faculty.

Introduction

Teaching and learning is all about unbundling the creativity in every individual. We are aware that the technological innovations have not spared the education system and the teaching methods also. Technology has led to information explosion. This has visible effects on the teaching-learning process. The greatest challenge before us is not only in terms of revamping curricula but a fresh makeover for our teaching fraternity. It is the faculty who would be the

change agents effectively bringing about the paradigm shift from teaching to learning. We have to train the 21st Century Learners on skills more than only delivering the content[1]. We have to make our learners to critically think, analyze, solve problems which are existent and which may arise in the future. The **'**digital natives' have a dual task to perform. They should not only learn the subject but simultaneously apply their knowledge to solve problems that are imminent. What we are talking about is the speed at which the world is progressing in all fronts. The learners need to be taught skills that would not leave them behind in the rat race. This is a daunting task for the torch bearers, the faculty community. It is imperative for them to understand the 21st century learners and adapt their teaching methods to the learning styles of these learners. They need to update themselves on the ever-changing content as well as the technological tools to be used in their classrooms. The university which is the playground for the players namely the teachers and students needs an overhaul. Its boundaries and environment needs to be porous allowing interaction with people from outside. It needs to be a dynamic body continuously evolving based on the changes outside. It needs to churn out quality students to be easily absorbed by the industry. The industry academia partnership will help facilitate these changes. This paper discusses the effects of such a partnership on the teaching learning process; a case study from ASC of VIT University, India.

The Effects of Globalization

Globalization has influenced various sectors of our economy especially professional education such as engineering and technology. Today's engineers and managers should have an understanding of the wider world as economies and peoples of the world intertwined like never before in human history. India's capacity to compete in the global knowledge economy will increasingly depend on whether we can meet the fast growing demand for high level technical skills. This, in turn, will hinge on universities' abilities and capacities to provide quality education that is adapted to the needs of the society and industry[2]. Establishing an Academic Staff College for educational and for professional development of its faculty members at VIT University is in line with the international concept of continuous training of faculty members[3].

'The shortage of appropriately skilled labour across many industries is emerging as a significant and complex challenge to India's growth and future. According to the National Association of Software and Services Companies (NASSCOM), each year over 3 million graduates and post-graduates are added to the Indian workforce. However, of these only 25 percent of technical graduates and 10-15 percent of other graduates are considered employable by the rapidly growing IT and ITES(Information Technology Enabled Services) segments. Hence, what we have today is a growing skills gap reflecting the slim availability of high-quality college education in India and the galloping pace of the country's service-driven economy, which is growing faster than most countries in the world. As businesses propose to double and triple their workforces and India Inc. strives to maintain its position in the global marketplace, it has become imperative to prepare and plan for a world-class, competent, talented and innovative workforce[4].'

21st Century Classrooms and Learners

The learners of today need skills that have to be delivered by the educational system along with their technical knowledge. "Education should provide the skills for 'learning to know, learning to live together, learning to do and learning to be.' Education for sustainable development has come to be seen as a process of learning how to make decisions that consider the long-term future of the economy, ecology and equity of all communities. Building the capacity for such futures-oriented thinking is a key task of education[5]."

Rethinking and reforming education from nursery school through university becomes important, to include a clear focus on the development of the knowledge, skills, perspectives and values related to sustainability for current and future societies. In today's global economy one needs to rethink and redefine education. Students need to acquire the 21st century skills to sustain in the current education setup. With internationalization of education we need to revamp our curricula, objectives and methods of assessment. With global universities entering into the Indian educational market, our education systems needs a thorough facelift. It should provide an opportunity for students to explore their ideas. It needs to inculcate the creative and critical thinking in our students. Students need to solve problems that don't exist, now.

The 21st Century learners prefer processing and multitasking, prefer processing pictures, sounds, prefer receiving information quickly from multiple multimedia sources, prefer parallel and video before text, prefer to interact/network simultaneously with many others, prefer instant gratification and instant rewards, prefer learning that is relevant, just in time and instantly useful and fun.

Partnership for 21st Century Skills is a leading advocacy organization focused on infusing 21st century skills into education in the United States. Figure 1 shows the six key elements of a 21st century education, which are: core subjects, 21st century themes, learning and thinking skills, information and communications technology, life skills, and 21st century assessments.
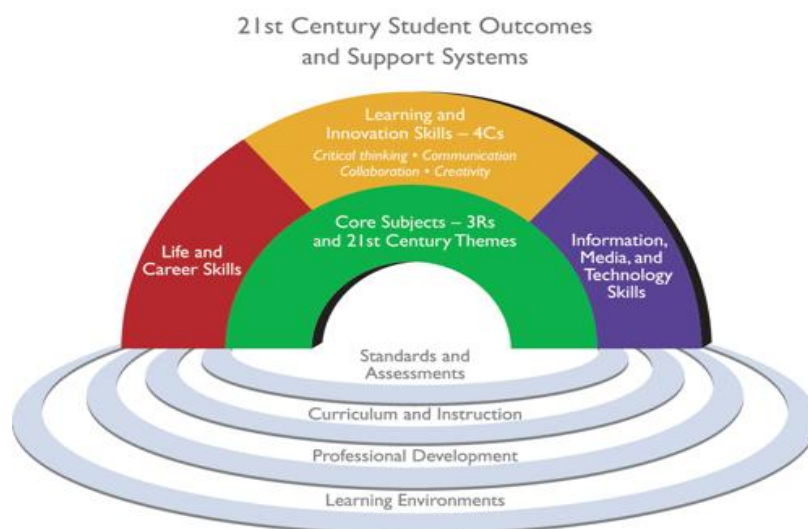

Figure 1. 21st Century Learning Skill

The 21st Century learning encompasses the following skills that are significant for the students. There is an emphasis on interdisciplinary, integrated, project-based, learning within a broad based curriculum framework:

- Collaboration – the ability to work in teams
- Critical thinking – taking on complex problems
- Oral communications – presenting
- Written communications – writing
- Technology – use information and communication technology(ICT) in education
- Learn about careers – through internships
- Citizenship – take on civic and global issues and involving in community service learning

Shift from Teaching to Learning Paradigm

"A paradigm is like the rules of a game. One of the functions of the rules is to define the playing field and domain of possibilities on that field[6]." Learning paradigm expands this playing field and domain of possibilities and it completely changes various aspects of the game. When we compare the traditional instructional paradigm to the new learning paradigm we note that not all aspects of the old paradigm have been changed to introduce the learning paradigm. In the traditional instructional mode of teaching the teacher is the focal point of all activities in the classroom. While in the new paradigm the student takes the precedence over the teacher. All actions results in learning by the learners. But the new paradigm does not demean the importance of lecture method but suggests that lecturing is one of the methods of instruction which appropriately produces learning in the classroom.

Responsibility of Learning

In the instruction paradigm the reason why a college exists is to deliver instructions, and thereby impart knowledge. In the learning paradigm the college exists to produce learning. It is important to note that the college is responsible for learning. Hence in the learning paradigm the students are co-creators and co-producers of learning. Thus the teacher and the student share the responsibility of learning in a truly democratic manner so that each is accountable for his actions. These joint efforts will definitely lead to synthesis of ideas which will synergize their efforts resulting in enhanced qualitative learning. In the learning paradigm a college sets itself not to merely transfer knowledge but establishes suitable conditions, creates appropriate environments whereby the students construct and discover knowledge for themselves. Thus, in the learning paradigm the college takes responsibility for its institutional and individual student outcomes i.e. ensure learning takes place.

VIT, being a University that caters to both Indian and foreign students from across 80 different countries, is truly an international University with International Accreditations for many of its programmes. As a University that is progressing by leaps and bounds training of the faculty is an indispensable and a significant element of the academic process. Faculty need continuous updating both in terms of new teaching approaches and also in the use of Information and Communication Technology (ICT) in their teaching process. It is extremely important to

have a pivotal centre dedicated towards the professional development of the faculty. The Academic Staff College at the University provides this support to its entire faculty and ensures through its training that faculty are constantly updated and exposed to the innovative methods of teaching.

Academic Staff College at VIT University

The Academic Staff College at VIT University was established with the prime objective of bringing innovation in the teaching learning process in the University. It serves as a nodal centre of excellence which offers high quality academic programmes that develops the technical knowledge and professionalism in educators. The ASC offers a range of programmes that equip the faculty to reach out to the students in an effective way. The Academic Staff College programmes can be viewed as a Comprehensive Solutions Workshop where programmes such as Soft Skills Training, Mind Mapping, Blooms Taxonomy of Objectives, Howard Gardner's Multiple Intelligence Theory and Stress Management are offered**.**

About 100 new faculty are recruited every year at the University. Most of them are new to the teaching profession. ASC conducts the faculty induction training programme which covers topics like Tips for effective teaching, Questioning techniques, Classroom management and Micro teaching. During Micro-teaching a faculty is required to simulate a classroom atmosphere and present a session for 10 minutes, taking 1 or 2 concepts which are video graphed. Feedback is given based on a well designed and structured teacher evaluation form on various parameters. The programme introduces the faculty to the latest pedagogic and classroom techniques. The faculty experiment with different innovative teaching approaches during the training and thereby enhances their skills for teaching[7].

Industry-Academia Partnership

This paper describes an industry-academic collaborative partnership that has empowered almost 200 faculty members in VIT University and has produced remarkable changes in the teaching learning process in the University. The Academic Staff College at VIT strives to bring excellence in the teaching learning processes through its numerous training programmes. In a new initiative it has partnered with WIPRO Bangalore to offer the Project 1 (Faculty Empowerment Workshops) to the faculty of the University.

The Project 1 programme endeavors to equip the faculty with innovative teaching methodologies which would result in quality learning in the classroom. The objective of the program is to enhance the employability of the engineering students through the actual transfer of skills from the faculty to the students. The focus of the training programme is the alternate learning approaches like games, quizzes, simulation, use of analogies and role-plays which provide a platform for active involvement of the learners. The five day workshop is a set of layered faculty enabling modules that enriches the faculty which are:

(1) **The Dale Carnegie module** trains the faculty about his/her individual presentation skills. The faculty's presentations are video recorded and constructive feedback to improve

his/her delivery style and body language is taught. Analogies help the faculty think critically and identify the right analogies to simplify concepts in his/ her discipline.

(2) **The second module on Cambridge International Certificate for Teacher and Trainers** helps the faculty reflect on classroom practices, develop a new teaching approach and helps facilitate active learning in the classroom. Bloom's Taxonomy and Multiple intelligence theories are examined and understood through different case studies and activities[8].

(3) **The third module is the Eclectic Framework** that combines the best pedagogic practices leading to Project 1 Certification in alternative learning approaches.

Experiences, Reflections and Revelations

The faculty is introduced to alternate teaching methodologies that provides input to become a mentor, guide and facilitator. The five day Faculty Empowerment Workshop introduces new techniques to the faculty who in turn will invoke better learning in student's minds.

The following are reflections and/or revelations by faculty who brought about the changes as a result of Project 1 training.

I **Revelations of Faculty**

1. "Displaying the lovely, adorable, and role-model personality within myself."
2. "Desire to possess strong subject knowledge."
3. "Making high-impact delivery."
4. "Maintaining command over the entire classroom space."
5. "Effective communication in the classroom."
6. "Caring for the learners."
7. "Establishing a learning ambience in the classroom."
8. "Developing interpersonal skills allowing for active participation and discussion."
9. "Keeping flexibility and composure to any change in the class ambience."
10. "Displaying right expressions and gestures."
11. "Relating through real-life occasions and incidences."
12. "Presenting logical progression of ideas."
13. "Engaging the classroom effectively."
14. "Providing the 'follow' appeal to the learners."
15. "Maintaining cool when multiple questions are asked and responding to them appropriately."
16. "Ensuring the preparation/knowledge level always high so that the questions are answered right then and there as far as possible."
17. "Giving the latest and up to date facts and information around the lecture topic."
18. "Encouraging the audience in participation and discussion."
19. "Starting the session with necessary recap of the previous session, arousing interest in the topic and ending with short introduction to the session that would follow."

II "A play way of learning"

"The Faculty Empowerment Workshop was a five day programme. From day 1, we were totally involved in the Workshop. We were actively participating in different activities forgetting our age, designation, discipline etc., we were like child who plays and learns by trying diverse things. We were good participants in the Workshop forgetting our outer world and our commitments. Above all it is **"**a play way of learning", observed a senior faculty member.

It is not really the fun and activity that attracted me towards the workshop. I got answers for few of my questions as well:

1. "How can I make the back benchers involve in the class?"
2. "How will I ensure that in every class that my content and lessons has reached to all my participants?"
3. "How can I make my class interesting rather than stuffing with only technical contents all the time?
4. "How can I make the tough topics simpler?"
5. "How can I see my class in students' perception?"

After attending this Workshop, I felt some changes within me;

1. "New Perception of my class."
2. "Handling the class calmly and maintaining my cool. [without hurry in covering syllabus, tension that they are not responding / reciprocating to me, scratching head to make them understand]"
3. "A sense of time management."
4. "Active learning throughout the session"
5. "Content delivery based on the pulse of the learner."

III New Learning Approaches

"After attending the Project 1 programs I started marking the attendance by calling the learners names so that I know the name and individual's attention can be given to the learner. I am teaching the subject 'Transmission Lines and Waveguides' for the 3rd Year Bachelor's Programme in Electronics and Communication Engineering."

"I started writing the notations of different Transmission Line Parameters which are discussed in the previous class and call students one by one to write the formula or to express it and in the same way each and every session is concluded by stating and writing important mathematical expressions discussed in that particular class. The student got more satisfaction so that any numerical problem can be solved without any difficulty. They started to note all the important expressions which are reviewed at the end of every session so that it will be very much helpful in the preparation for Term End Exam. The student's pass percentage in Continuous Assessment Test, which is 50% weightage, increased to 90%.

I have made all the special cases of Transmission Lines like loss less line, low-loss line and distortion less line in a tabular form with their conditions so that the students derived the primary and secondary constants. In the same way, I taught the short circuited and open circuited line with their V, I and, Z in expressions and the related wave forms of voltage and current.

In each and every Smith Chart problem, I called the learners by their names to mark the point in the Smith Chart one by one. Interaction among the students is increased and I have broken the concept of "pin drop silence" in the class. When I go around the class only the bright learners give the correct answers immediately but I waited for some time to start the next topic since I wanted the average students also to solve at least 70% of the problems.
- I had more confidence in my teaching and the learners are satisfied with my teaching.
- Thanks to the Project 1 program that motivated the faculty to think beyond our normal teaching-learning process throughout the course duration of 4 months."(i.e. one semester)

Conclusion

WIPRO, Bangalore and Academic Staff College's initiative has led to the establishment of Project 1 Concept Centre at VIT on a permanent basis. The Concept Centre provides the right ambience for faculty to interact, share their experiences and discuss their innovations in the classroom. WIPRO's trained faculty (Master Trainers) use the Concept Centre for faculty discussions and our faculty fine tunes their methods of instruction in the classroom. Academic Staff College takes pride of the fact that this partnership has produced remarkable changes in our faculty as also the student's interest towards learning.

The paradigm shift from teaching to learning has been initiated at VIT. Faculty no longer consider themselves as dispensers of knowledge but have a donned a new role of being a facilitator. Alternative teaching methodologies have made classrooms very interesting and students no longer attend class just for attendance sake. Role Plays, Games, Puzzles, Quizzes, and Analogies have replaced some traditional methods of instruction namely "lectures" and "chalk and talk". Analogies have helped the faculty in simplifying complex engineering concepts and reaching it out to students better. Einstein's quote sums up this revolution in the classrooms at VIT University. "I never teach my pupils; I only attempt to provide the conditions in which they can learn**."** VIT is slowly marching towards this goal.

Faculty members, who are trained in the FEW (Faculty Empowerment Workshops) at VIT, get together to share their success stories in bringing innovation in the classroom. One no longer gets to see traditional structured classroom. This has given way to group discussion, group work and collaborative learning. Students understand the concepts better by this way. Brain storming has produced marked improvement in the student's learning. This has clearly been seen in their improved performance in their examinations. There is a silent revolution in the classroom and in the teaching -learning process. Faculty have learned to use different alternate technologies of teaching and improvisation and creative activity in the classroom; this has become the order of the day.

Project 1 has provided a platform for our faculty to experiment and to infuse enthusiasm amongst the students in the learning process. There is now a battle of creative thoughts and methods; the outcome of which has resulted in taking the quality of the students to newer heights.   Academic Staff College with its faculty trained as Master Trainers have successfully completed 8 batches (Each batch about 30 faculty participants) of the Project 1 Faculty Empowerment Workshops and are moving faster towards their mission of empowering the entire VIT Engineering faculty fraternity. There has been a ripple effect that the Project 1 training programme has created. The comprehensive programme, starting at the self, moving into the classroom context and encompassing all the different styles of learning and teaching methods has transformed our faculty members. Faculty rush is seen in the Workshops and also their enthusiasm is visible in the Workshops and thereafter. Faculty are anxious and eager to take the learnings of the Workshop to their classroom. Project 1 has created a great impact amongst our faculty[9].

Project 1 has truly provided the impetus for faculty development training at VIT University. This will go a long way in helping our faculty and students to face the global challenges in the teaching and learning process and in the world of work.

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