INNOVATIVE TEACHING PRACTICES FOR 4G STUDENTS

Editors

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About the book

This book consists of a glimpse of many professors' ideas towards improvement of teaching practices in India. The vital concept includes strategies in teaching, modernization in education, art of teaching, flipped class room, brain storming, active teaching and learning, challenges in teaching, creative teaching and design thinking. A collection of research letters presented over here has main intention to help the student community by adopting innovative teaching. Around 95 articles were contributed through research letters all over India. Notably, 68 articles were reviewed and presented in this book.

Message from the Editors

We 5 of us **Mr. Daniel C, Dr. Sarala, Dr. Vincent Sam Jebadurai, Mr. Arunraj E, Dr. Hemalatha G** shortly called as dynamic crew from Department of Civil Engineering, Karunya Institute of Technology and Sciences, Coimbatore, Tamil Nadu, India, have a common intention to empower young minds via innovative teaching practices. As teachers cum researchers, our intuition is to grab the current trends in innovative teaching and learning practices. Therefore, we create a common platform to professionals so that they could share their point of view in techniques to improve teaching practices in India.

Contents

1. A pre-requisite Approach for Teaching Practice with Student-Centric Learning

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Learning the Learners using Student-Centric Approach: Techniques to Improve Teaching in India

A Pre-requisite Model to Explore Teaching Technique:

Before following any teaching technique, it is very important to Learn the Learner and then to implement the teaching technique based on the learner's capability. Hence, I propose Learner – centered Teaching methodology [LCTM] or Student –Centric Teaching Technique [SCTT].

Understudy focused adapting, otherwise called student focused training, extensively incorporates strategies for instructing that a shift with the focal point of guidance from the teacher to the students. Learners focused learning scopes individuals interests first, recognizing students voice as key to the learning background.

Shifting the Focus of Activity from Teacher to Learners:

The approach of teaching from the perspective of the learner: The instructor has to rethink their role and the role of their students in the learning process. Summarized are principles of excellent teaching that have been abstracted from decades of research and discussion about human learning. These methods include Active learning, in which understudies take care of issues, answer questions, detail inquiries of their own, talk about, clarify, discussion, or conceptualize amid class

- Cooperative learning, in which understudies work in groups on issues and tasks under conditions that guarantee both positive relationship and individual responsibility
- Inductive teaching and learning, in which students are first presented with challenges. Inductive methods include inquiry- based learning, case-based instruction, problem-based learning, project-based learning, discovery learning, and just- in-time teaching.

Student focused strategies have over and over been appeared to be better than the customary educator focused way to deal with guidance, an end that applies whether the surveyed result is momentary authority, long haul maintenance, or profundity of comprehension obviously material, obtaining of basic reasoning or imaginative critical thinking abilities, development of inspirational dispositions toward the subject being instructed, or dimension of self-assurance in learning and aptitudes.

Active Learning Strategies

As an instructor, one of your greatest difficulties is to design exercises that motivate your understudies to remain effectively engaged with the learning procedure. However, you've most likely seen that customary, educator focused learning designs aren't constantly helpful for accomplishing that motivation.

That is the place dynamic learning techniques become possibly the most important factor. You can utilize them to enable, draw in, and animate a classroom by putting understudies at the focal point of the learning procedure. Get motivated by these 8 systems that will enable understudies to talk all the more straightforwardly, think all the more inventively and — at last — turn out to be progressively occupied with the way toward learning.

1. Reciprocal questioning

Use reciprocal questioning to encourage an open dialogue in which students take on the role of the teacher and create their own questions about a topic, reading section, or lesson.

To facilitate the process, you can provide students with “question stems,” which provide a foundation for a question but still require students to think critically about a lesson, text, or other section of material by completing the query.

Reciprocal questioning can be particularly useful when:

- Preparing for tests or exams
- Introducing a new topic or section of course content
- Discussing reading or writing materials in greater detail

2. Three step interviews

A cooperative learning strategy, the three-step interview encourages students to develop active listening skills by quizzing one another, sharing their thoughts, and taking notes. To use the three-step interview process, divide students into groups of three, and assign three roles: interviewer, interviewee, and notetaker.

After also assigning a theme or topic of discussion, have students participate in a five to 10-minute interview to discuss what they found to be the key information relating to the topic.

After each interview, have students rotate roles. Depending on factors including the grade level of your students and their experience with the strategy, you may adjust the length of the time for each interview.

The three-step interview confers benefits including:

- Helping students learn and apply different questioning strategies
- Strengthening students' connection with course material in a creative and engaging way
- Producing a sense of accountability, with students working together to complete a task and grasp a lesson

3. The pause procedure

Use the pause procedure to intersperse strategic pauses into your class lectures and enhance student understanding of teaching materials.

Use the pause procedure, arrange for pauses of two to three minutes between every 10 to 15 minutes of lecture time.

During these brief breaks, encourage students to discuss or rework their notes in pairs to clarify key points covered, raise questions, and solve problems posed by the instructor.

Alternatively, students can work together to write a paragraph that connects or highlights key ideas set out in their partner's notes.

4. The muddiest point technique

The muddiest point technique involves asking students to write notes on the most unclear or most confusing element of a given homework assignment, lecture, or class discussion.

Asking students to write down what they find to be the least clear is a powerful exercise because it compels them to grade or rate their own knowledge of a topic.

5. The devil's advocate approach

The devil's advocate approach asks one or more students to take the opposing side of a predominant argument or point of

view being discussed during a lesson.

This approach can help cultivate active learning in the classroom by encouraging students to:

- Think more critically, challenging participants to expand their understanding of the perspectives surrounding an issue and to view it through a different lens
- Become more engaged, fostering involvement by drawing out opinions to explore the complexity of an issue being studied
- Produce deeper understanding of topics or issues, using rigorous analysis to collectively clarify, probe, and pose alternatives to problems being discussed.

6. Peer teaching activities

A flexible and multi-faceted approach to active learning, peer instruction encompasses a range of scenarios where students instruct skills or explain concepts to classmates.

Some popular options include:

- Reading buddies — A cooperative learning strategy that pairs two students who work together to read an assigned text.
- Cross-age peer tutoring — A peer learning strategy involving students in different grades, wherein which one student instructs another on material in which the first student is advanced and the second student is a novice.

- Role play — A group of students is split into smaller groups and given a specific task to complete, like in small group work. However, in addition to working on a specific task, the members of each group are asked to play a certain "role". Unlike in traditional role-play, all members of one group play the same role, not individually assigned roles.

7. Game-based learning platforms

Game-based learning platforms add depth and differentiation to the educational process and allow students to work with their instructors to achieve their learning objectives.

8. Rotating chair group discussions

Rotating chair group discussions encourage students to actively listen to selected speakers who follow a pattern of guiding class discussion and summarizing previous points. Math games and websites are at the forefront of delivering active learning through technology.

One example is Prodigy, a platform that constantly adjusts questions to tackle student trouble spots and delivers math problems with words, charts pictures, and numbers.

Students lead and stimulate class discussion as they "rotate" roles, repeatedly selecting the following speaker.

To use this strategy effectively, ensure that students adhere to

the following pattern:

- When a student wishes to participate, they must raise their hand
- The student who is speaking calls on the next speaker, ideally someone who has not yet contributed
- The student who has been called upon briefly summarizes what the previous student said before developing the idea further

Cooperative learning:

Inductive teaching and learning:

Disclosure Teaching and Inquiry-Based Teaching are different procedures related with Inductive Teaching. As the terms recommend, the students are given chances to watch, involvement, bring up issues and plan speculations from the learning background that they are presented to. It is up to the educator to make and present exercises for the understudies to create sound speculations. And keeping in mind that the understudies are in the investigation procedure, the educator must guide them with the goal that ambiguities might be kept away from.

Inductive teaching allows opportunities for students to interact with each other. Brainstorming, Buzz Sessions, and experiments are just some examples of Inductive teaching methods may be applied. Since the students get to collaborate in

discovering and learning a concept, they get to improve their personal and social skills. And the road to learning becomes more fun, enriching and interactive for them.

2. Engineering and Stream Foundation Courses for Motivating the Students

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Engineering education in our country has really evolved over the past few decades. Today, in the prime educational institutes there are students who have gone through rigorous coaching to crack the entrance examination. Some of these students quickly lose their motivation to excel in their engineering education even after getting admission to these prime institutes. On the other hand, there is also a plethora of engineering institutes which cater to students who have lower marks in the entrance examination. Some of such students are not well-equipped to undergo the rigors of engineering education. Also, lots of the students just take up engineering education without having a real motivation for it, maybe, just because their parents want them to be Engineers.

Today in India most of the technical education accreditation agencies are promoting an Outcome Based Education [OBE] system. In outcome based educational pedagogy the emphasis is on a learner centric system where the onus is on the learner. The teacher acts as a mentor and facilitator to facilitate learning in OBE. Due to large classes and higher Student to Faculty Ratio [SFR] norms declared by the relevant educational authorities, the faculty is not in a position to

individually cater to students in the class.

It is observed that there are a large number of unmotivated students in the course. In spite of various warnings these students do not attend lectures/labs or only bodily attend without paying any attention to the proceedings in the class. These students do not really have a desire to become engineers nor do they have any deep inclination towards the branch in which they are enrolled for study. Some of these students leave the institute after 1-2 years, being unable to clear their courses. Some of them are not able to get promoted to higher classes due to multiple failures in examination. There are also a large number of students who scrap through the exams of the lower years, but find the going tough as they move on to the higher semesters. Education seems to be a burden and they are clueless if they really wish to attain the outcomes of the program and for what purpose.

The objective of this article is to propose techniques to overcome this dilemma in OBE in the current educational system. Can we somehow motivate the students who have landed in the engineering education system but are distracted into other activities and addictions, other than education and learning? Students who have no motivation or eagerness to score and attain the outcomes in OBE, can we create an interest in them towards the courses and the teaching and learning activities?

We propose the introduction of two foundation courses in the first year of engineering. The first course proposed is on

“Foundations of Engineering Education.” The objective of this course would be to motivate the students to the discipline of Engineering. The students should become aware of the challenges of engineering educations and the benefits of it. They should understand their roles and responsibilities in the society as an Engineer. Basically the course should prepare the students on what to expect in the coming 4 years and how they have to prepare themselves for the efforts to be put in, and then finally the benefits that will accrue from being an Engineer. The second course proposed is on “Foundation of <stream> Engineering” e.g.,

Foundation of Computer Engineering, Foundation of Electrical Engineering, etc. This course should motivate the students to study in the chosen stream of engineering. The course should introduce the stalwarts in the field who can be role models to the students. It should clearly highlight the benefits to the individual students and also to the society at large of the chosen stream of study. It should prepare the students for the effort they have to put in to excel in the chosen stream and provide them with career options available. It should provide the student with an introduction to the structure of the program, the core courses, and the electives, and prepare the students to make the correct choices during their later semesters on the electives and project/dissertation topics. It should prepare the students to plan their study and their career after graduation, right in the first year. This will keep them motivated to achieve their goals.

It is advised that both the courses should have seminars/expert talks taken by experienced and expert people who could be distinguished professors and professionals from industry and research, in addition to the course instructor. Both the foundation courses could have some laboratory component where students are exposed to hands on work with tools and equipment to further expose them to the chosen engineering domain without getting into details. It is expected that by undergoing these two foundation courses, the students will have a better understanding of what is engineering, and what is the chosen stream all about. This will motivate the students by clearly showcasing them the benefits of studying. This will bring interest in the learner and enable a learner centric system to succeed, which in turn would provide success to an outcome based educational system. It will also better align the students towards the outcomes of the program and how they can benefit from the education and achieve success in future.

3. New Techniques to Improve Design Thinking of Students

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"The main motto of technical education is to improve students in design thinking who can able to think and create designs for human society needs". Presently, India's technical educational purpose is a value-based education. Education is a powerful tool to change the technological progress of sustainable country's development.

The task of a great professor is to stimulate ordinary students of thinking to impracticable effort. It's a not a tough task in identifying student's capability but in making good design thinkers of ordinary students.

Classroom activity is the best approach, to improve in thinking of students that can be done in methodically in step by step without sacrificing the covering of syllabus. Some of the class room activities are Analogy, Brainstorming, Demonstration, Quiz, Questions and Answers, Case Study, rapid

fire quiz, who is having my answer, and Gaming/ Board Activity.

Some of the new techniques that can be implemented in classroom are:

Impersonation and learning activity: For this I will call 2 or 3 students to impersonate on a topic and the learners can be asked to observe the situation and identify the topic themselves.

Snake and ladder (Game of Dice): we can play a small game. At the end of unit completion, based on the topics discussed previously, facilitator can ask to answer questions. For this total class can be divided into 2 groups. One group can be asked to throw a dice. if number say 4 is obtained then any student from the other group will have to answer for 4th question. The chance to throw the dice can be rotated between groups alternately. But for this we need to prepare the snake and ladder chart with questions in each number.

Try your luck: We can conclude the end of the class by revising the key concepts through the activity called "try your luck". For this it requires a wheel with numbers and a needle. Students have to rotate the wheel. The number on which the needle stops is the question number that the students has to answer.

Best answer (from problem solving): I can divide the class into 4 groups. The groups can be asked to solve the problem using analytical method. After giving 5 minutes for

finding the best solution.

For that one representative from one each group can be asked to read the final answer obtained. Facilitator (I) can provide assistance to students as and when required. Finally, I will summarize the steps for solving and students can be asked to note of the solution based.

Show and tell: The students can have the knowledge on Subject. So, to check the understanding of the students we can conduct a show and tell activity. The above techniques have been validating keenly by doing continuous research. Initially it is difficult to initiate but it will give fruitful results.

Conclusion after every activity is as important as the introduction. Conclusion summarizes the subject matter and establish connection between the topics. It should recapitulate but not repeat it. Some of the effective methods of concluding a session could be quizzing, graphical representations, picture/figure analysis and gaming.

4. Innovative Methods of Effective Teaching and Learning

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We often think of the effective teachers we have had over the years with a sense of recognition, but those who have touched our humanity, we remember them with a deep sense of gratitude.

Teaching generally includes two major components viz., sending and receiving knowledge or information. With reference to technology education context, the teacher is the sender or the source, the educational material is the information or message and the student is the receiver of the information. The basic purpose of teaching is to make understand the listeners the fundamental concepts and further motivate them for logical, critical and design thinking aspects. This necessitates to devise new methods of teaching and learning processes.

Analysis of Traditional Methods of Teaching and its Limitations

The most common method chalk-and- talk, presentations using PPTs, overhead projectors etc., that are commonly used for teaching assume a passive role of the listeners and their concentration fades off after 15-20 minutes. This is "one-way flow" of information. There is insufficient interaction with students/listeners. More emphasis has been given on theory without any practical knowledge and real-life time situations. Students of present generation don't like to sit down and listen. Things have changed now and they want to explore new ideas using advanced tools and techniques.

Most of the time, effective teaching aspects are only focussed.

But, effective methods of teaching and learning, both are extremely essential since effective teaching helps in effective learning and helps the listeners to understand the information. There is a saying by Confucius that, "I hear and I forget, I see and I believe, I do and I understand. Thus, by using effective, innovative and interactive methods of teaching, we can enable the listeners to understand the content and store them in long term memory.

Innovative methods of Teaching include various methods such as: Multimedia teaching methods – An Interactive teaching and learning Process

Use of Text, Images, Audio, Video and Animations, e-materials, apps etic can be used for interactive learning.

Mind Map- Innovative way of teaching and Learning process

Making notes with keywords and images including visual and sensory tools, drawings and sketches.

Role Playing and Scenario Analysis Based Teaching

Use of Role plays and activity-based learning such Quiz, Brainstorming sessions, Demonstrations, Quiz, Debates, Group discussions, Gaming sessions, rapid fire sessions, etc.

Theory supplemented by Practical's

Practical approach depending on student's needs, Industry Requirements and specialization has to be carried out. The concepts that are taught in class rooms have to be supplemented by doing practical sessions for experiential learning.

Teaching with Sense of Humour

Teaching with a good sense of humour plays a vital role in conveying information. It keeps the audience live with full energy and interest to listen. It also helps the listeners to remember the content for quite a long time.

Experiential Teaching and Learning

By submission of assignments, writing articles, problem solving, execution of group projects, illustrating real life problems and team work helps the listeners to gain practical knowledge and thus increases one's thinking ability to a broader dimension.

Learning Never Ends. It is a continues process and helps one to stay young and energetic. Teacher is the Greatest Innovator. To teach is to learn twice. Thus, by hard work, team work and smart work, teaching and learning becomes more enjoyable.

5. Techniques to Improve Teaching Practices in India

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Imparting education is like imparting light to the mankind in right path to surge. Education like any other areas of the society has evolved in leaps and bounds in recent years. The major difficulty to any teacher is to capture a student's attention and passing on various useful ideas which leave ever lasting impression. There is a very beautiful saying by Alexandra K. Trenfor, "The best teachers are those who show you where to look, but don't tell you what to see". Teaching is the major factor in educational planning which further helps in conducting educational plans. A good education provided act as an engine for the growth and progress of a society. Despite so much of importance of good teaching, outcomes are not ideal. The purpose of this research article is to help improving the effective actions to be taken to improve the teaching techniques to make it valuable and constructive to not only to academically sound students but also to the students who are weaker learning students. The traditional teaching methods are basically based on teacher interpreting the topic and students taking down the notes. But now days, the education sector revolves more around encouraging the students to awaken their curiosity and desire to

learn. Creativity can help in developing innovations among both teachers and students. As teachers, it becomes necessary to be able to teach while remaining engaging as well.

With the setting up of the constitutional of education committee in the year 1943, the education sector got the thrust and later with the formation of All India Council of Technical Education (AICTE), a statutory authority was formed which uphold the standard of education. AICTE has taken many steps and initiatives for improving the education in our country. The National Council of Educational Research and Training (NCERT), helps in strengthening the research being the first step and only long-term solution to the crisis of decline in the quality of teaching. The Ministry of Human Resource Development launched in December, 2002, the technical education quality improvement programme of government of India (TEQIP), which aimed at upliftment and improvement of education as well as aiming to enhance the existing capacities of the intuitions. Government of India has also launched the Sarva Shiksha Abhiyan (SSA) for achievement of universalization of education in a time bound manner. District information system for education (DISE) helps in maintaining an overall record of all these flagship programmes.

To improve the successful communication, teachers are increasingly using teaching-learning media. Active learning processes helps in targeting in a better and more proficient manner the visual learners by means of models, discussions, demonstrations as well as games. By using various tools, a

teacher can help in stimulating the creativity of the subject or the topic being discussed. Incorporation of various audio-visual materials along with the supplement text books is a useful tool. Including such tools aids in thriving the imagination to grow.

These methods not only help in improving the listening skills but also improve the understanding of the concepts more efficiently. Due to very less histories regarding the effectiveness of various activities, even the faculties are hesitant in including the new strategies in the present curriculum. Several communities like AICTE, TEQIP, and UGC etc. have recommended the restructuring of the overall curriculum as to inculcate the quality education. Rapid changes of modern world have led to many challenges for education system. Assuming the education quality, attention to students is considered the main aspect which is expected from a quality education system.

Students must be encouraged to opt for different idea and major role of teacher is this should be to give them complete freedom to explore their notions. Study of modern topics through new recently published papers of top impact factor journals, either in groups or through group discussions. Students are more exposed to recent updates with the help of research paper reading as well as discussions. The only motive of all these is to inculcate the habit of self-learning and role of teacher or the instructor is more like a facilitator. Along with all the other efforts and various mechanisms, one can also include teaching along with introduction of Capstone projects. These projects are included in the curriculum of students so as to make students

more interested in carrying out independent research on the topic of their own interest under the guidance of their faculty mentor. This will help them to engage in healthy discussions and debates which will increase the deeper understanding of the subject. Infusing the field studies or the real- world experiments along with instruction in teaching will enrich the learning process. Demonstrating through the real-life situations will make material easy to understand will be able to deal with the actual time strategies.

Besides all the techniques and suggestions one foremost step should be the implementation of the legal and structural changes. Parents must ensure to send the students to school or colleges and the district education officials should be responsible for the quality of the education being imparted in the respective institutions. The pubic-private partnerships (PPP's) options must be explored for strengthening the district institute of educational research and training (DIET) or the state council of education research and training (SCERT) programmes being launched by the government. Along with this, teacher training programmes using either the traditional/ distance or information and communication technologies (ICT) methods must be made compulsory so as to provide standardized assessments. A good teaching method helps the students to question their own perceptions which ultimately motivate them to learn more efficiently and putting them to the real- life situations in which they come to comprehend by themselves as the correspondents of the answers as well as the representatives who are responsible

for bringing the change.

6. Strategies to improve Teaching Practices

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Teaching is an intricate ability. In some ways, it is impossible to capture in a page or two the difficulty of what good teachers do. Yet nothing is more essential to achieving our goal of success for every student than high excellence of teaching. That is why Classroom First places the teacher at the centre of our improvement efforts. I believe it is important for all teachers in our college to have a clear understanding of the Department's place in relation to effective teaching practice. I hope this statement will motivate debate at staff meetings and certified development forums, and will help teachers deliver a high-quality set of courses to their students. Efficient teachers personalize the wisdom for their students. They understand that students extend at different rates and that in every classroom there will be a range of student abilities and aptitudes. They accommodate the different desires of students in their class somewhat than ground their teaching to the middle, letting some students be bored while others struggle or are incapable to do the work. Efficient teachers use techniques that have each student working on specific tasks so that they can engage and challenge them to achieve their personal best. They understand

that students learn best when they are presented with new material in a way that enables them to attach it to what they already are aware of and know how to do. Efficient teachers also understand that students learn best if their scrupulous culture, environment and abilities are accepted by the teacher in the way they teach. For the above all perception we need to take consider the student centric approach while delivering the lecture. Below are some strategies to improve our teaching practices.

List of Few Strategies to Improve Effective Teaching:

1. Visualization: life with the visual and practical learning experience.
2. Two-way learning: Teaching completed when two-way communications happened.
3. Inquiry-based tutoring: Create thought-provoking questions which inspire your students to think for themselves and become more independent learners.
4. Segregation: Differentiate the task as per student's ability.
5. Technology in the classroom: Using ICT tools.
6. Behaviour Management: Implementing a valuable behaviour management strategy is crucial to gain your students respect and ensure students have an equal chance of reaching their full potential.
7. Professional development: Engaging in regular certified development programmers is a great way to enhance teaching and learning in your classroom.
8. Use the public resources in your teaching: plays, concerts,

government agencies, businesses, professional contacts, or the outdoors.

9. Make wisdom goals explicit for each task; explain visibly what students are to do and how it fits into the track as a whole (and at the very least, make sure all of this is explicit in your mind).

7. Improving Alternative Technology of Animal Dissection in Zoology Laboratory

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In science education laboratory work and practical knowledge is a main part of study. Without doing practical work there is no any meaning to study science. Zoology is a basic subject of biological science and zoology students are gain knowledge by studying animal science through animal dissection. Animal dissection has been removed from the curriculum in developed countries, and replaced by virtual laboratories. But from last some years Indian government has ban animal dissection in zoology subject because of more waste of animal specimens. Because of the ban of animal dissection in undergraduate and postgraduate level colleges, there are many questions on the future of zoology students. After the ban of animal dissection in place of dissect animals' students have too study that part of syllabus by computer technology and demo lectures.

In post- independent India, there were a few colleges and universities offering courses in life sciences and zoology, and the number of enrolled students was less too. Because of this, very few animals were used for dissections. But with the introduction and acceptance of the title "Education for All", the number of students enrolled in these courses began to increase considerably

with time. For instance, presently about 400,000 students are enrolled in undergraduate programs in Tamil Nadu, of which about 250,000 are students of biology/ zoology and botany. They dissect animals, and assuming that with each student dissects at least 5 frogs, about 1,250,000 frogs are killed in Tamil Nadu each year. The Bharathidasan University in Tiruchirappalli, Tamil Nadu has been the innovator, introducing the so-called "Bharathidasan University Model". "Animal dissection should be carried out only if the animal is not protected under Wildlife (protection) Act 1972", emphasises the Bharathidasan University's course model. With support from the pioneering teachers, I-CARE drafted a lengthy memorandum that was put forth the Minister for Human Resource Development of Government of India by Mrs. Maneka Gandhi of PfA. Understanding the profoundness of the situation, the memorandum was then referred to the University Grants Commission (UGC) by the Minister, with instructions to take the necessary steps. In his letter addressed to all universities of India dated October 31, 2006, the Secretary of UGC referred the said memorandum to him and called for suggestions (Akbarsha 2007).

With respect to practical's, the new syllabus is lengthier than the old syllabus; but most of it involves writing from charts and demonstrations of organisms or methods. The main problem that the committee is facing following the ban on dissections is regarding the topics which should be included in practical syllabus and their contents, so that they prove to be useful to the

students in the future. There is a difference in the syllabus followed by the college affiliated to Gujarat University and the autonomous college- In college 2, the practical syllabus is different as compared to college one. Some new topics are added, some other topics have been interchanged; and the method of demonstrating performing practical's is different in both the colleges. In semester 1 and 2, both the colleges study different specimens in type study. There are slight changes in the syllabus of semester 3; whereas in semester 4 paper A, the topics are completely different. In semester 5, the topics in the papers have been interchanged; and the syllabus of second practical paper in semester 6 is different from the University syllabus. Besides introducing changes in the syllabus, college 2 has also added some new topics too, which are not very difficult and will be useful to students while pursuing master's degree.

There is a vast difference in the current and previous syllabus. The earlier syllabus was closer to real zoology, whereas because of the current syllabus, students are far from actual zoology. Earlier, the students actually used to perform the practical's in the laboratory, and were supposed to complete writing in their journals from home. Nowadays, students have to just keep writing even in the laboratory. Ever since the dissections were banned, both the students and the teachers have lost interest in practical work. The department lacks teaching staff, but the government is not recruiting the required number of people because of which students have to suffer.

Zoology (main) is being side-lined by the addition of

other branches like cytology and biochemistry. The number of students seeking admission in B.Sc. after completing 12th standard has increased, as Microbiology, Biochemistry, Biotechnology, and the like are applied subjects whereas botany and zoology are subjects related with teaching field. The current syllabus is lengthy and there should be changes in the vacation period, which will make the semester system better.

There are a number of animal- free alternatives that can be used in life sciences education today, all of them having their own set of positives and negatives. Models and charts can serve the purpose well, as students seem to have no difficulty in understanding the anatomy of mitochondria, Golgi apparatus and the gene, when explained through models and charts. Digital video, multimedia, computer- assisted learning, simulations or self- testing models are the computer- mediated alternatives. In this era, information technology encompasses educational technology, there are countless free and commercial websites and CD-ROMS that teach animal anatomy and animal dissection. Not only do these alternatives enable the students to study animal anatomy without harming the animals, but they also make the learning process thrilling, less expensive, and encourage the students to operate computers and visit websites (Akbarsha et al. 2013).

The ban on dissection of cockroach, housefly, mosquito, fish, and insects is completely unnecessary. For instance, in a batch of 30 students, only 6 specimens will be used if dissections are performed in groups. This approach will provide basic

knowledge of animal morphology and anatomy. Killing animals in front of or for students, and making them dissect animals cannot make them conscious about biodiversity conservation. Thus, it is important that if animals are studied, they should be studied by seeing them alive, in their natural environment.

- More numbers of field studies on fauna and fauna in syllabus.
- Wild life study tour.
- Report writing.
- Museum study and tour.

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8. Competency focused scalable e-learning tools for engineering education in energy related disciplines: Is Indian system ready for transformation

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Competency focused scalable e-Learning tools in engineering education with focus on energy related disciplines: Is Indian system ready for transformation.

The declination of fossil fuel has put an emergency and sustainable renewable energy of great interest to National (as well as) International communities. Nearly, every fresh Indian engineering graduate can opt for energy related field due to multi- disciplinary in nature. Limited compatible and result oriented resources are being considered as major challenges for engineering and technology graduates. However, an internet accessible remote laboratory would be able to provide full competency even to remote areas and time friendly in nature. So, scalable of e-Learning tools in engineering education with context to energy related disciplines is the need of hour. It is an add on for effective energy education tools.

Availability of education and trained manpower at all levels is very pivotal for successful implementation of any program towards sustainable use of new & renewable sources of energy. Renewable energy education is therefore, of prime importance.

Today's learners need compact, relevant, self-paced, and target oriented content. This need is fulfilled with the online mode of learning; here, students can learn at their own comfort and requirement. This digitization has led to noteworthy change in how the content is accessed. Despite a voluminous literature on firm- level technological capability building in developing countries, there is still limited knowledge about the relative importance of different learning mechanisms as firms deepen their technological capabilities. But Co-evolution of e-Learning provides to achieve an elevated professionalism.

As e-Learning is a paperless way of learning, it supports and uplift the environment to a greater extent. As per a Literature on e- Learning courses, it has been found that distance-based learning programs consumed around 90% less power and generated 85% less amount of CO2 emissions as compared to traditional campus-based educational courses. E-Learning will boost to forestation and cut down deforestation. Thus, e-Learning for engineering education would be eco-friendly and fruitful awareness creation in the newly emerging era of renewable energy.

Competency focused scalable e-learning tools engineering education with focus to energy related disciplines will create

social awareness in students and will calculate environmentally friendly activities like Paperless Education.

9. To improve teaching -learning process

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To improve the teaching-learning process, it is mandatory to follow smart ways of approach. Digital tools will provide the solution, to interact the millennium generation students and this may induce them to understand the concepts well in depth. Another good approach is video lectures. Sharing knowledge through video graphs with suitable examples may reach the students quickly and best platform to make them to learn. As we live in digital era, practical examples and current affairs should be mixed with the subject we teach, to attract them well. Class beyond class room is also another good way. Change in ambiance creates refreshed mindsets and easily make them to listen and understand. Conducting lecture series by the experts, preferably from research organizations, industries and corporate sector is also another good mechanism. Real time application-oriented inputs given to the students will also a good approach. Inducing students to do practice on the things what they learn is the best opportunity, offered by the teachers. Apart from this, teachers must be trained up well. Every teacher must have been updated with the realistic affairs and current trends on the subject related areas. Skill development is very essential one for the teachers. It is necessary to be smart and best in teaching. Repeating the same concept or even the words will also mark a teacher in negative way. Boldness in outlook and class delivery

will lead a teacher's image above a level. Life time learning and updating themselves should create the unique name among student’s society.

10. Balanced Teaching

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Our nation needs balanced teachers. If teachers aren't balanced, their students could not able to get what they deserve. Lessons are put together, the grading piles up and everything gets hurried because the teacher is simply trying to survive every day. When a teacher feels that they don't have enough time, the time has come to rehearse the following things i.e. flexibility and prioritizing. An Overworked, unbalanced teachers are impatient, tired and irritable. Balanced teachers will always encourage and motivate their students. It's vital that teachers should spend time to plan meaningful lessons for their students. Hence this time should not be taken up by extra meetings and conferences. Time to plan meaningful lessons should be a sacred time for teachers. When this time is mis-managed by administration, we are letting down our students. They are the ones that suffer.

Balanced teachers always have energy and time to run a functioning, healthy class. They always have time to identify

slow learners, weak learners and advanced learners in their class. They have the energy to support weak learners and slow learners through tutorial classes, remedial and reinforcement classes. They implement different teaching strategies like Flip class room, model display, audio visual aids to make them understand difficult topics. They have the time to connect with that student who often falls under the radar. They have the spirit to tell jokes, have brain breaks, connect as a class community and make their class a joyous place to learn and grow.

A balanced teacher can teach students to think creatively. They always encourage students to learn difficult concepts by developing small projects. Project-based learning is a dynamic classroom approach in which students actively explore real-world problems and challenges and acquire a deeper knowledge. Project-based learning encourages student to involve in research activity that they are interested in. The project would involve coming up with a viable solution. As a result, students will acquire professional skills and personal skills.

A balanced teacher can take students to industries and they can help students to learn advanced concepts practically. Importantly, Industrial visits can help students pursuing professional education to gain real time experience of how industry operations are executed. With the help of industrial visits, the technology gap can be easily bridged between theoretical and practical learning. During industrial visits students can actively interact with the experts available in the

industry and it helps them to understand key concepts more practically. Students can know about their importance of their branch of study, job opportunities and their roles in the organization during industry visit.

A balanced teacher can conduct outreach activity programme to their students. Outreach activity helps students to interact with community people directly and helps them to understand their societal issues, environmental issues etc clearly. This programme motivates students to develop solutions using technology addressing their issues. Hence this activity provides a platform to the students to enhance their professional skills. Students involving in this activity learn to create a visual, interactive power point presentation which can be easily understood by common people. Initially they start as presenters and when they get involved, they can present their ideas to a large audience confidently. The other important aim of this outreach activity is to guide them in building relationships with their community. Such activities have to encouraged in educational institutions so that learners will get opportunity to improve their skills.

11. Effective Techniques to Improve the Teaching

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In the era of digitalization, the students need to be motivated to learn, unlearn, relearn and implement the concepts and go beyond the knowledge level to higher levels of thinking. They must apply, analyse, and synthesize, and solve new problems. This is where the role of a teacher is of utmost essence. If the students have a teacher on whom they can fall back on , who keeps them motivated and gets them going through all the good and bad times, such students will always go an extra mile to achieve success in grades as well as in the life and will go on to become strong and successful. Kids these days are intelligent compared to older generations, thanks to the technology. So, they can gain extra knowledge from outside world very quickly. But with working parents, kids are deprived of basic emotional support system which older generations received, which is a major setback of the technology boom. Due to this they need someone who can tell them that they can do very good in life and become their emotional support system. This is a chance which every teacher can take and step in to the student's life and help them with not only their studies but also help them grow and make them emotionally stable human beings.

So as teachers, we need to put a lot of effort to properly understand the challenges of effective teaching. So as a teacher we need to come up with some strategies, investigate which method works and take necessary actions to modify the learning and teaching methodologies to help our students.

Few of the techniques can be as follows.

- Make the student as the teacher: However, in this technique the role of the student is reversed to that of a teacher, thereby changing their perspective of the problem. However, it should be remembered that as with the case of the "Practical Examples" technique, the concept to be explained by the students should be relatively simple and straight forward.
- Connecting the theory class and the labs: Explain the basic concepts of the subjects in the class and start the lab component in the class room itself with available resources such as PC, projector and the relevant hardware-software combination.
- Structured enquiry and open-ended problems for the lab: Open-ended laboratory classes can be broadly defined as classes where the students are encouraged to design their own experiments or devise their own experimental strategy, rather than required to follow a rigid set of experimental guidelines specified elsewhere as in a lab manual.
- Nano-micro-minor-major projects: Hands on experience always clears most of the theoretical concepts. So always

its best idea to involve the students in some kind of projects at different levels. For the first-year students the project can be very simple (Nano project) mainly concentrating on team work, time management and concept clearing. Similarly continue this process as and when the students reach the higher semester the complexity of the project should increase.

Cluster formation and group learning: Some of the new age learning includes the methods such as collaborative learning, blended learning, learning with hands on experience, etc. Cluster formation is the first step in the collaborative learning process. The topics can be dealt with the conventional teaching methods or with the help of new age technology. There will be scope for the student discussions once after the completion of a particular topic. If the groups still continue with the doubts then the faculty has to intervene and solve the problem.

Using technology in blended learning process: In this method the online resources are going to play a major role. The students go through the online resource and complete the given topic of discussion. Then the discussion with the group members will start, if the group members are unable to resolve the problems arose, then the faculty member need to clear the doubts.

The above-mentioned teaching method can be implemented with the help of the following.

i). Formation of the cluster
ii). Proper mixing of fast and slow learners in the cluster.

iii). Permission to conduct the group discussions.
iv). Feedback and Result analysis of the students.
v). Gap identification and continues improvements.

Other forms of blended learning models

- Flipped Classroom: Students complete basic instruction at home through online course work and lectures and use regular class time for teacher-guided practice and projects.
- Flex: Online learning serves as the "backbone" of instruction as students move through learning activities on fluid schedules according to their needs. Teachers provide in- person support as needed while students work through content at school.
- A La Carte: Students take an online course led by a teacher located remotely in addition to face-to-face courses with teachers in their school.
- Enriched Virtual: Students complete most of their course work online outside of school but attend face to-face learning sessions at school, which may not occur daily.

Conclusion

In many situations the learning styles of the students and the teaching methods used by a teacher are incompatible in many dimensions. Most of the students are sensing, inductive, active and visual to grasp the things, whereas most of the times education is abstract, auditory, deductive, and sequential in nature. These mismatches are the reasons for the poor

performance of the students. This may lead to frustration in the long run. So making use of different effective teaching techniques as mentioned above may lead to meet the needs of most or all of the students in any class. In this way a teaching style that is effective for most of the students and comfortable for many of the teachers will evolve which leads to a dramatic effect on the quality of learning that subsequently occurs.

12. Five Essential Investing Topics for Finance Students

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Introduction

Finance is an essential and integral part of our business school curriculum. Drawing inputs from several, but inter-related disciplines including management, commerce and economics, finance is a basket full of jargon. Teaching finance involves simplifying concepts without letting the terms lose their gravity. This paper explores some key personal finance and investing topics that can be used in both professional and personal financial life.

Methods

While a classroom setup is necessity to introduce financial jargon and make students comfortable with, a handpicked mix of modern tools such as internet websites and smartphone apps increase the student interest, involvement and engagement. Colourful presentation slides add excitement to theoretical concepts. They can be supplemented with pre-computed tables (to explain what-if scenarios) and with graphs (to explain impact of late / incorrect decision making). Since investing decision

making is not simple and straight forward, and often uses consensus from various data points, it is important to bring all details into a single page – both in terms of fundamental and technical analysis. A template / worksheet-based scoring system can help in this regard. Needless to say, spreadsheet skills are mandatory to do decent financial analysis, at least at basic level (Zhang, 2014). Even for mutual funds, a check- list driven evaluation system and a point-scoring system can help. However, industry-grade stock market data feeds are to be purchased and are often out of reach for smaller educational institutions or in ad hoc setups such as in a workshop. An alternative to this is to use openly available online financial website tools (such as SIP calculator, Screener etc.). With over 6000+ listed companies and a similar number of mutual fund schemes in India, financial analysis takes a lot of time, is mundane and nearly impossible. Hence a filtered approach of pre-screening by using openly disclosed / disseminated portfolios can dramatically cut down analysis time to just 350 – 650 companies and only handful number of schemes. A 42-point rule driven approach is then used to find an investment worthy company (Get Paid India, 2019). Social media tools such as WhatsApp groups can be used for pre and post- class interaction and engagement. Assignment questions can be effective (Drenk, 1982) in challenging students with current market scenarios and act as a good post-class practise. Considering time constraints, a comprehensive study material in the form of booklets for each of the topics can be given at program registration time. This helps students to do some background preparation before they sit in

the class.

Results

1. Personal finance topics though appear to be already familiar, can act as a revision and be a precursor to the right way of investing.
2. Investing strategies highlight importance of invest planning, control emotions and inculcates discipline.
3. Mutual funds are great tools to implement a variety of financial plans.
4. A structured theoretical approach, supported with templates, can make fundamental and technical analysis a very interesting subject.

Discussion & Conclusion

Research shows that financial training intervention amongst teenagers improves their interest on finances, risk identification abilities and overall financial knowledge. (Lührmann, Serra- Garcia, & winter, 2014). Of course, different topic weightages and explanation methods will be used when teaching school kids, college students and working professionals. The concepts are stacked such that the student is gradually taken from already understood and comfortable topics to more serious and specialized ones. Keeping this mind, the subject can be organized into five topics:

1. Personal Finance teaches the importance of money management, builds a solid financial foundation and generates surplus cash to channel into investments.
2. Investing Strategy transforms the student from savings to investing-mindset so that surplus cash can be deployed into debt and equity markets using various short, medium- and long-term strategies. Cash and risk management and emotional and psychological control are kept in mind.
3. Mutual Funds focus on scheme selection matching investor intended risk and returns and implemented using an active or passive strategy.
4. Fundamental Analysis is the qualitative approach of evaluating quality, valuations and financial trend of a company. Macro and micro economic factors can be introduced while discussing quality aspects with reference to the company, business and the sector in which it is operating. Valuations can be discussed explaining various financial ratios but using real life math examples which students can easily correlate and understand. Several methods ranging from use of working capital approach (Upton, 1949) to use of algebra to explain a consolidated balance sheet (Francis) were suggested, but, their use would be limited, particularly amongst students from non-finance backgrounds. The company's' financial performance can be explained by downloading the recent quarterly and annual report.

5. Technical Analysis, being quantitative study, is pictorial and is relatively easier to explain. Basic charting concepts are first introduced before branching the subject into patterns and studies. These are explained by drawing charts of various securities (stock or indices) - and for various time-frames - so that the subject is justified for all market roles (ranging from scalper to long-term investor).

Our studies and experiences in teaching these five-topics of investing and methods employed have found to have simplified investment decision making and made profound impact in the financial journey of the investors.

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13. Teaching methodologies to improve teaching in India

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The customary "chalk and talk" technique for instructing that is held on for a long time is currently gaining sub-par results when contrasted and the more present day and progressive instructing strategies that are accessible for use in schools today. More noteworthy understudy connection is energized, the limits of power are being separated, and an emphasis on happiness over evaluations is underscored. As educators, it's important to most likely instruct and stay locks in. It puts a more prominent dimension of obligation on making exercise designs that really work. Here are a portion of the instructing techniques that are having an effect.

Divided Learning:

Teachers have revealed astounding outcomes when it came to spaced learning. Spaced Learning is a learning technique in which the consolidated learning content is rehashed multiple times, with two 10-minute breaks amid which exercises, for example, physical exercises are performed by the

understudies/The key is in the mind cells. It encourages them to make the associations that they have to really recollect the learning.

Adaptability:

Sometimes regular exercise squares simply don't function as each understudy is extraordinary and they all have their tricky subjects. The idea of Flexible Fridays is that an inside and out session of a subject can be gained by basically having an entire day of arithmetic or some other subject. At Flexible Friday's exercises an educator attempt to assist every understudy with studying and realize what is the most troublesome for him/her actually.

Nearby visit trips:

Instead of traditional showing techniques, understudies were taken to visit neighborhood organizations where they could observer how the information that they were learning connected to this present reality. Different days were put aside for this training and all understudies were required to wear tailored suits so as to visit. The thought is to get understudies drawn in and to interface their figuring out how to this present reality. In the event that educators can demonstrate to them how what they are instructing interfaces with this present reality then their very own mind cells will interface them and partner them.

Imaginative strategies:

New techniques for instructing have the reason to enhance the nature of training and include understudies in instructive procedure. Advancements mean an advancement and development. As an instructor, to handle this test viably, you should actualize inventive thoughts that make the classroom experience substantially more adorable for your understudies. Support diverse thoughts, give them the opportunity to investigate. Join broad media materials to supplement course readings amid your sessions. These can be models, filmstrips, motion pictures, pictures, infographics or other personality mapping and cerebrum mapping tools. Such apparatuses will enable their creative energy to flourish and grow. These techniques won't just build up their capacity to tune in however will likewise enable them to comprehend the ideas better.

Conceptualizing:

Make time for meetings to generate new ideas in your classrooms. These sessions are an incredible method to get the inventive energies flowing. When you have various cerebrums concentrating on one single thought, you are certain to get various thoughts and will likewise include everybody into the discussion. These sessions will be an extraordinary stage for understudies to voice their contemplations without stressing over right or wrong. Set some guidelines previously you begin. You can go for basic conceptualizing or gathering

conceptualizing or matched conceptualizing.

Individual aptitudes:

Teaching through pretending is an incredible way to make youngsters venture out of their solace zone and build up their relational skills. This technique proves to be useful, particularly when you are showing writing, history or current events. The pretending approach will enable an understudy to see how the scholastic material will be important to his ordinary undertakings

Story Boarding:

Story boarding is an extraordinary method to show any subject which requires well-ordered remembrance or representation exceptionally reasonable thoughts. History instructors can utilize a storyboard to reproduce a celebrated occasion. Such outwardly animating movement will guarantee that even mind-boggling thoughts are effectively put crosswise over to students. You can likewise support the utilization of storyboards as a type of correspondence and let the understudies recount a story in pictures utilizing their creative ability

Condition:

A classroom situation that is all around enriched, fun, and connecting with will help invigorate an understudy's mind and

will support think and learn better. Such an innovative and animating condition will enable them to investigate and will urge them to find out about the subject. Youngsters, particularly youthful ones can't be relied upon to sit throughout the day and learn. A situation that decidedly impacts the kids is useful for you also.

A receptive frame of mind can help you in improving new educating strategies. Community exertion: As everybody knows, the final product of the collective exertion is dependably immense. Think about investing some quality energy with your partners. Request that they share their views on enhancing educating methods; you can see huge numbers of them think of fascinating strategies. So, work together and present creative instructing techniques.

Riddles and amusements:

Learning is fun when puzzles and diversions are a piece of instruction. Kids may not require requiring cognizant exertion when their exercises are presented through amusements. Riddles and diversions assist kids with thinking innovatively and face difficulties.

Educator self-evaluation:

Being an instructor you may not inspire enough time to take a shot at intriguing subjects that you are energetic about. To be an innovative instructor, you have to do some exploration on

imaginative thoughts and techniques. There is a great deal of books on creativity. Choose the absolute best works and begin learning, it will be useful for your expert improvement too. You can give your best just on the off chance that you genuinely love what you do. When you are not focused on, you will be increasingly inventive and enlivened. Cherishing your work keeps you loose and gives you space to explore different avenues regarding new thoughts. Assess yourself and guarantee you experiment with new thoughts in the classroom. In some cases, a frenzied outstanding burden may influence your commitment in educating.

14. Strategies to improve Teaching methodology for better Teacher-Student interactions and to have motivated Society for Socio-Economic Development

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Teaching is a novel profession which comprises interactions, sharing of knowledge, responsibility to impart social-economic values of life to induce humanity for progressive human development. From Dawn of civilization, teaching imparts knowledge; enlighten light to justice, rationalism to human race. The greatest amongst teachers are like Lord Buddha, Lord Mahavira and others who have enlightened modern human values in India. In present situation of our country teaching practices in most cases performed at class room where tutors or the class teacher is putting his/her knowledge through chalk-board and give some notes from reputed/standard text book as prescribed in syllabus. It may not be interesting to all students since all pupils are not of same calibre, thinking and patience. In order to improve class room teaching, making it more attractive to students in the age of Internet, E-books, normal interactions after teaching hours are needed in the form of Quiz, Group Discussion and others. In addition to class notes, text books some good quality reference books are also needed

where the explanations may be more lucid in nature. For deep understanding of the subject, a teacher must explain to the student the importance of subject in true sense, so that the pupil may have much interest on logical development of subject not just for exam but for improvement in his/her life to become better human being and disciplined confident motivated workforce for the progress of Socio-economic parameters for the nation. A Teacher/Faculty concerned must explain the philosophy of the particular subject before introducing the subject as per text book syllabus format. Philosophy of the subject concerned aids a person to understand much better in true sense its vital linkage with present-past socio-economic growth path, importance of the subject which is the ultimate for the progress of human society in large. To make more interesting, Teacher/Faculty should refrain more making any negative to the student but instead should constantly encourage him/her to think in a simple way as per the capacity of the person concerned. Interesting presentations are also needed to be given in a lucid manner where sometimes complex theories are explained in details with some applications for better understanding. Regular class notes are to be modified with some modern perspective or issues of the concerned subject and to make the interactions more natural to-fro communications should be encouraged. Students should be encouraged to go through other text books of their choice along with important e notes, presentations, (NPTEL, MIT Courseware, SWAYAM, MOOC) so that if any fails to understand the complex theories within specified class period due to exhaustion may have a look with their own interest in off period. Moreover,

continuous internal examinations are needed to be carried in a very scientific way where stress must be given on concepts rather on memory test rather scribbling of class notes. Students must be encouraged to give presentations of the topic of the concerned subject on sharing basis among other classmates for better viability of the subject. It is also needed to focus that while dealing with complex theories, problems, practical examples are needed to be discussed in the form of various case studies, report writing or simple projects. If the subject concerned requires practical's, it should be performed rather some extra practical's are also needed to be encouraged beyond curriculum. Students must be given some theory project along with the practical of the concerned topic depending on the subject. Students must be encouraged to listen to various speeches as delivered by person of repute in other/home institutions. Seminars or conference based on Subjects with prime focus on improvement for Students must be organized with expert talks from Academia-National Agencies-Industry personnel. More focus is needed to enhance students' capability of problem identification, solving with analytical skills, and enhancement of communication since knowledge needs to be disseminated keeping proper subject content. Teacher/faculty must encourage students to take projects of their choice, solving the problem but with full focus on latest modern trends of the subject concerned in addition to the traditional knowledge. Students should be inspired with more quarries during regular class work. Creation of prototype model may help students for clarity and constructive attitudes. Overall increase in analytical practical outlook should be taken care to

developed full maturity capability to enhance communicative skill.

15. Teaching practice - what our country needs?

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Teaching practice, just like other things demands innovative and out of the box thinking. This is required in order to adopt the learners to get ready for an innovative world, which is dominated by digital and communication advancements. The keywords in this context should be innovation, curiosity for invention, inquisitive learning and the most important aspect called creativity.

Creativity helps student learners to face technical challenges and nurtures their problem-solving skills. The creativity and the inspiration, when encouraged on young minds, they will be good assets and great intellectuals, and this would impact the innovations and growth of the society in a positive way. Creative intelligence drives innovation. The imagination and originality of young minds should be enhanced for a good cause. An effective and a high- quality education system should provide such kind of a positive impact on the learners.

Now starting at the effective teaching practices, a good

teacher plays a major role here to impart this kind of knowledge and encourage the student thinking in this direction. They should be aware of more effective teaching techniques and trained for various learner appropriate teaching strategies. This would help the teachers to engage the learners in a more interesting way. In this context, educating the teacher is essential to improve creative teaching process. Teachers should keep them informative and updated professionally through some continuous learning methods and assessments. They should also undertake specialised skill development and high-quality training programmes in order to keep them more innovative and engaging.

There should be more encouragement and positive response from teachers for creative contributions of learners and also to provide the learners with the required freedom to explore in the form of questions and discussions. Teaching with a chalk and talk or even with attractive PowerPoint for hours might not work well if the learner participation or discussion is not encouraged. The teacher could encourage learner interaction as a part of modern revolutionary teaching methods. This sort of practice leads to independent and critical thinking among the learners and they will be in a position to communicate their views in a better way. The learners can take responsibility for their own learning by means of self-reflections and questions. A learner trained in this manner, will be able to exercise initiatives in real life projects and be able to work effectively in teams, communicate better and move towards excellence and

innovation in a faster pace.

Demonstration and relating concepts with practical examples would excite the interest of the learners. A highly conceptual idea is remembered better when taught through visualisation. The practical knowledge of the learners gets enhanced by the activity-based learning techniques. A field visit or an industrial training and internships would help the students learn more about the real world and appreciate about how the knowledge obtained in the class room, in fact gets applied to the real world. This will give them a connectivity of their learning to the real world. The connection and association with the real world would go a long way for their career growth aspects. The expectations of the global work force from the student learners are to make the individuals effectively engage with each other by creative tasks and be adaptive to a lifelong learning approach. All the learners should be exposed to these practices as a part of comprehensive learning experience.

The next important role is played by a conceptually organised curriculum. The curriculum should be strengthened from global perspective and modern era skills requirements. Critical thinking-based assessments and grading should be part of such a curriculum rather than a curriculum based on memorising facts, information and formulae. Better assessment methods should be framed rather than essay-based exams. Flexible and focussed lesson - plans should be essential part of a curriculum which can help students to grasp difficult concepts. From students' point of view, choice-based credit systems are

good initiative and encourages students to choose subjects based on their interest. An ultimate achievement for a well-designed curriculum is to make the students think about ideas and concepts in new ways. Schools and classrooms need to promote a more learner – centred approach. From the learner experience feedback, the core challenges need to be identified and appropriate action plans need to be taken.

A special emphasis should be provided for the learning environment that promotes stress- free learning. All type of conventional and identified academic outcomes needs to be redefined, new outcomes which go beyond academics should be identified for a better learning experience. These outcomes should be a blend of academic contents such as creativity and problem solving, interpersonal and communicative skills so as to enhance the competency and the learning experience.

Some important and encouraging efforts can be taken from the government and NGOs to reform the education sector and bring about high-quality teaching and learning practices to be implemented in India. Every teacher's day the government awards and recognises the best teachers all over the country. such people could further be encouraged by sending them to high performing nations in education sectors like Singapore, China and Korea to get trained and adopt the best practices implemented in those countries. Opportunities should be provided for the interested and willing teachers to spend their summer or winter breaks for these kinds of exchange and visiting teacher type assignments. Such teachers should be

financially well supported so that, the best teachers could gain new perspectives and learn excellent teaching practices, which could be useful for our country.

A creative and well-trained teacher, an organised and innovative curriculum and a better learning environment all these things play vital roles in the aspects of improving the teaching practices. Efforts should be made to build, strengthen and sustain these aspects, which is essential for the development of a nation's intellectual growth. In addition to the knowledge and skills development, there should also be emphasis on values and ethics in the modern teaching practices.

16. Making Teaching Methods More Interesting

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Higher education faculty strives to become more effective teachers so that students can learn better, and many explore methods to improve their teaching practice. Depending on the nature of subject, number of students, and the facilities available, there are different methods teachers are using in the classroom. Below are given various methods and certain tips and techniques for improving these methods.

1. Lecture Method:

A lecture is a talk or verbal presentation given by a lecturer, trainer or speaker to an audience. With all the advancement of training systems and computer technology, lecture method is still a backbone widely used in teaching and training at higher level of education. This method is economical, can be used for a large number of students, material can be covered in a structured manner and the teacher has a great control of time and material. A study conducted by Benson, L., Schroeder, P., Lantz, C., and Bird, M (n.d.). provides evidence

that students may place greater emphasis on lecture material than on textbooks. Lecturing is not simply a matter of standing in front of a class and reciting what you know. The classroom lecture is a special form of communication in which voice, gesture, movement, facial expression, and eye contact can either complement or detract from the content. (Davis.1993). McCarthy, P.(1992) in article "Common Teaching Methods" stated strengths of lecture method that it presents factual material in direct, logical manner, contains experience which inspires, stimulates thinking to open discussion, and useful for large groups. Our findings also revealed that most of the students considered lecture as best method because according to opinion of students; it creates new ideas, it is good for large class, develops creativity among students, teacher is experienced and has mastery on subject, explain all points and can answer all questions by students. Sullivan & McIntosh (1996) said that with planning and effective presentation techniques, the lecture can be a highly effective and interactive method for transferring knowledge to students. Lecture gives the pupils training in listening and taking rapid notes. (Kochhar. 2000, p.345)

Tips and techniques for improving lecture method

- Lecture material should be stimulating and thought provoking.
- Information should be delivered dramatically by using example to make it memorable.
- The teacher needs to use questions throughout the lecture

to involve students in the learning process and to check their comprehension.

- Reinforce learning by using visual supports like transparencies, flip charts, whiteboard/ black board etc.
- Teacher should take feedback of students to improve lecture method.

Discussion:

It is a free verbal exchange of ideas between group members or teacher and students. For effective discussion the students should have prior knowledge and information about the topic to be discussed. McCarthy, P. (1992) stated strengths of class discussion as; pools ideas and experiences from group, and allows everyone to participate in an active process. Kochhar (2000, p.347) stated that; a problem, an issue, a situation in which there is a difference of opinion, is suitable for discussion method of teaching. Our study also revealed that the students rated group discussion (class discussion) as the second best method by giving reasons that; it has more participation of students, the learning is more effective, the students don't have to rely on rote learning, every student give his/ her opinion, and this method develops creativity among students. Tips and techniques for improving discussion method

- The teacher should spend sufficient time in preparing the process and steps of discussion.
- Different aspects of the topic and the parameters should

be selected for the focused discussion.

- Sufficient time should be allotted to discuss all the issues. At the same time students should know the time limit to reach a conclusion.
- The teacher in the beginning should introduce the topic, the purpose of discussion, and the students participating in discussion.
- Before the start of discussion, background information about the topic should be provided.
- There is a need to include questions to provide direction.
- Relaxed environment should be created to foster the process of discussion.
- Teacher after opening the discussion should play the role of a facilitator involving every one and at the end should summarize the discussion.
- Encourage students listen other's point of view and then evaluate their own.
- Teacher should give value to all students' opinions and try not to allow his/her own difference of opinion, prevent communication and debate.

2. Role Play:

Role play occurs when participants take on differentiated roles in a simulation. These may be highly prescribed, including

biographical details, and even personality, attitudes and beliefs; or loosely indicated by an outline of the function or task. These techniques have already demonstrated their applicability to a wide range of learners, subjects and levels. (Singh, and Sudarshan, 2005, p238, 239). It is a memorable and enjoyable learning method. To gain maximum benefits from this method, the incidents selected for enactment should be as realistic as the situation allows.

Tips and techniques Before the role play, the teacher should brief participants about the roles they will play, give them time for preparation, confirm confidentiality of role play, and ask participants to behave naturally.

- Teacher should select & brief observers about their roles.
- During the role play, the teacher must keep quiet, listen & take notes, avoid cutting role play short, but give time warning if previously agreed. The teacher should be prepared for some action if participants dry up and can intervene as a last resort.
- After the role play, the teacher thanks participants, ask for feedback from lead participants, take comments from observers, ask other participants to comment,
- The teacher should use role names not those of participants, summarize, drawing out learning points, leaving the participants with positive comments and feelings.

3. Case Study:

Primarily developed in business and law contexts, case method teaching can be productively used in liberal arts, engineering, and education. This method is basically used to develop critical thinking and problem-solving skills, as well as to present students with real-life situations.

The students are presented with a record set of circumstances based on actual event or an imaginary situation and they are asked:

1. To diagnose particular problem(s) only.
2. To diagnose problem(s) & provide solution(s).
3. To give reasons & implications of action after providing both problem & solution.

It is a time-consuming method and sometimes the case does not actually provide real experience. It could be in-conclusive, and insufficient information can lead to inappropriate results. At the end, the students want to know the right answer by the teacher. The role of the teacher in conducting the case study should be to:

- read the case and determine the key problems faced by the decision maker,
- determine the data required to analyze the problems and for a synthesis into solutions,
- develop, analyze, and compare alternative solutions, and recommend a course of action. Tips and techniques

- Cases should be brief, well-written, reflect real issues, and open to a number of conflicting responses. • Students should work in group to prepare a written report and/or a formal presentation of the case.

4. Brainstorming:

It is a loosely structured form of discussion for generating ideas without participants embroiled in unproductive analysis. It is a very useful technique for problem solving, decision making, creative thinking and team building. It develops listening skills. Tips and techniques Ground rules for running brainstorming session include:

- There should be no criticism and the wild ideas should be encouraged and recorded without evaluation.
- Emphasis should be placed on quantity of ideas and not the quality.
- There is a need of equal participation of members.
- It can be unfocused so teacher should know how to control discussion and facilitate issues.
- It works well in small group

5. Assignment Method:

Written assignments help in organization of knowledge, assimilation of facts and better preparation of examinations. It

emphasizes on individual pupil work and the method that helps both teaching and learning processes (Kochhar, 2000, p.358).

Tips and techniques

- Teacher should describe the parameters of the topic of assignment.
- Fully explain assignments so that students know how to best prepare. When the inevitable question, "Will we be tested on this?" arises, make sure your answer includes not only a "yes" or "no," but a "because . . . ". Shea, A. (2009).
- Davis (1993) suggests that "Give assignments and exams that recognize students' diverse backgrounds and special interests. For example, a faculty member teaching a course on medical and health training offered students a variety of topics for their term papers, including one on alternative healing belief systems. A faculty member in the social sciences gave students an assignment asking them to compare female-only, male- only, and male-female work groups."

Recommendations:

- To evaluate teaching effectiveness different methods can be used including: peer review, self-evaluation, teaching portfolios, student achievement and students' ratings of teaching methods used by their teachers.

- Students must be assured that the information they are giving is welcomed by the
- Faculty and will be used to improve the teaching and learning in the course; otherwise they are unlikely to take the rating process seriously (Doyle.T. n.d.).
- Teachers need to educate students in effective ways of giving precise feedback that addresses specific aspects of their learning experience.
- Teachers need to continually assure students throughout the semester that the ratings will be used for productive changes in teaching/ learning process and that there will be no chance of retribution to the students

17. New Generation Teaching

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Teaching is an active process in which one-person shares information with others to provide them with the information to make behavioural changes. Learning is the process of assimilating information with a resultant change in behaviour. Learning process involves a motive or a drive, an attractive goal and block to the attainment of the goal.

Learning is effective when students' prior experience and knowledge are recognized and built upon, they actively engaged in the learning process and providing structured occasions for reflection are provided to allow students explore their experiences, challenge current beliefs and develop new practices and understanding which is facilitated by the use of multiple teaching methods and modes of instruction to address various learning systems at the same time information is elaborately encoded at the time presented and special efforts are made for memory storage and retrieval.

Professionalism in teaching can be developed by reflection (what, how and why you do i.e. critical reflections contributes to teaching excellence and outcomes), self-assessment (feedback

from mentors, supervisors, peers, students) and goal setting (future professional development).

Effective teaching includes command over the subject matter, soft skills of the teacher, proper teaching methods/techniques. Learning is adaptation or adjustment, improvement, organizing experience, behavioural changes, universal and continuous. Laws of learning include readiness (degree of concentration and eagerness), exercise (things most repeated are best remembered, and requirement (ability, skill, instrument or anything that helps to learn something). Different styles of teaching include lecture style, coach style, activity style, group style and blended style. Different types of learning styles include active and reflective learners, sensing and intuitive learners, visual and verbal learners, sequential and global learners.

Communication skills that a teacher must possess so that they interact properly with the students include oral communication and presentation skills, technical skills, listening skills, writing skills, body language skills, electronic communication skills, emotional intelligence, positively personal attitude, negotiation and conflict resolutions skills and time and stress management. The three levels of listening are non-hearing, hearing and thinking.

Presentation is the oral and verbal communication with an audience. The mantras for effective presentation include research on your audience, prepare thoroughly, familiarize with the venue, manage your stage-fear and start with a captivating

opening. Time management is the skill of acting for the right reason at the right time in the right way.

A lesson plan is the outline of activities that the teacher will follow in order to create an effective learning situation. It is a statement of the aims to be realized and the specific means by which these are to be attained as a result of activities performed. A lesson plan is the instructor's road map of what students need to learn and how it will be done effectively during the class time. Time Frame of lesson plan include introduction (15% of allotted time), body of the lesson (55 % of allotted time), summary (15% of time), conclusion (5% of time) and feedback / evaluation (10% of time).

Successful teaching does not happen by an accident or chance. It emerges when the teacher understands students behaviour and adopts an appropriate instructional methodology. Instructional strategies, or teaching methods, depend on several factors such as the developmental level of students, goals, intent and objectives of the teacher, content and environment including time, physical setting and resources.

Teaching and learning styles by their very nature are changing and in recent years there has been a noticeable move from lecture-based activities towards more student-centred activities. Lecture method, lecture cum demonstration method, team teaching, project method, programmed learning, jigsaw, problem-based learning (pbl), and case method are different types of teaching.

Technology in education makes learning interactive and interesting and aids in better visualization. Innovative Techniques of E-teaching include power point (for beginners), power point with E- Pen (as a substitute to tablet), power point, E-Pen and Well-crafted Whiteboard, software (as a partial substitute to whiteboard), power Point, E-Pen, well-crafted whiteboard software and windows media encoder tool (for lesson recording without the help of camera and assisting personnel).

Evaluation forms a very crucial element in the entire process of Instructional System Design (ISD). ISD is a model delineating the various essential components of a good educational programme. The model starts with identifying the objectives of education first and then deciding the learners, content or subject, methods of instruction and physical facilities. Its purpose is to collect and document learner performance in a training course, as well as on the job. The goal is to fix problems and make the system better, not to lay blame.

For goals to be useful, they must be specific, challenging, feasible, and progress must be measurable. In other words, you must set a goal that will challenge someone to adapt or change, you must set a goal that is specific in nature, and the goal must be possible to achieve. Then, in order to see if one is successful at accomplish that goal, an individual must be able to find ways to measure/assess whether movement towards that goal is being achieved over time.

For assessment measures to be content-valid, and thus

defensible, instructional and evaluation tools must be related to the objectives as set forth by the instructor. In other words, specific objectives must be established, activities must be designed to accentuate or support those objectives, and assessment tools must be developed to assess the link between student-learning and the objectives selected.

Evaluations help to measure Reich's gap by determining the value and effectiveness of a learning program. It uses assessment and validation tools to provide data for the evaluation. Assessment is the measurement of the practical results of the training in the work environment; while validation determines if the objectives of the training goal were met.

So, making meaning out of new information by connecting it to already known information. According to Bonwell and Eison (1991), teaching approaches such as collaborative learning, problem- based learning, undergraduate research etc., are pedagogies of engagement as they require learners to be actively learning by doing the related tasks. These will enhance the teaching practises in India.

18. Effective Teaching – the only way to ignite young minds

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In the era of internet and media exposures, it is rudimentary to nurture minds and bodies alike so that only relevant information percolates in their system and influences them in a positive way.

Teaching methodologies of the "Gurukul "way in the past has led to original thinking, innovative developments, creative works, intelligent involvements contributing to social, cultural and economic benefits to our country.

The question always arises whether instructions given in schools, colleges and across several universities are enjoyed by the receptors or are dumped into their learning process for the sake of adding entries in their personal database. These databases are only utilized for the purpose of form filling of different aptitudes, job openings etc. and act as added thickness to their personal files.

As a matter of fact, Rabindranath Tagore, the author and composer of our national anthem had dropped out of school as he was able to excite his creativity only when he was amidst

nature. He could not be in sync with the typical system-based learning within the perimeter of a classroom. Later when he introduced "Shanti Niketan" he ensured that his students enjoy and the formal outcomes of a school are satisfied.

Though project-based learning had been promoted for quite some time, its authenticity, originality and outcomes need to be measured not only by marks or degrees acquired but also by the artistic, commercial and technical prowess gathered by learners. Problem statements are better to be propagated among young learners about all subjects and solutions of those ideas are discussed with them only after they have used experimental base to find out innovative ways to solve them.

Unless a congenial environment is provided, thought processes will not get stimulated. Therefore, effective curriculum of a course, its utility and usefulness, omission of unnecessary subjects within a course, the depth of each topics, blending of eastern and western cultures in the teaching process, avoiding restrictions to the methodologies of content delivery and assessment methods are necessary.

Classrooms, teaching halls etc. are supposed to support the matter within a course and to support those research laboratories, gardens, NGO sites, mini manufacturing plants could be utilized for rendering thoughts and processes of young brains.

Learners' ability, interests, compatibility, effectiveness could be gauged in the early years of education and parallel

curriculum needs to be structured so as to bridge a major gap existing in our education system. Skills required to solve issues with daily life must be an essential part of all courses and so jobs of plumber, carpenter, electrician, cobbler, tailor and many others should be included in addition to regular experiments. That would avoid social gaps among different classes of people and create different job profiles.

Diversity in courses not limited to engineering, medical, arts and commerce has been introduced so far but it needs revision and modification. Self-awareness should be created among young learners with practical demonstration, its benefits to society, individuals and create fresh job avenues and better employability.

Brain drain to other countries would be avoided and our products, art and craft, articles etc. would receive its much needed and deserved attention by other countries.

Education for all has been a motto by our government but its need is to be instilled in every individual and schemes are to be promoted and advertised. Student and teacher exchange programs between different countries as well as among various universities of our country would invite a natural information flow and develop strong learning attitude, confidence, fresh thinking, and imbibe tolerance, positivity and sensitivity among learners and educators.

A rule to teach rural people or those who cannot afford education has to compulsorily embedded as a duty of every

citizen similarly as done in medical fields which indirectly would improve our economy and place our country as a developed one in near future.

A complete overhaul of our education system would require industrialists, academicians, public and private organizations, media as well as students to join hands and form strong platform which would invite showcasing new talents, laurels and award-based programmes, strong tie-ups and mental growth and understanding.

Our age-old traditions and heritages are to be showcased by mass promotion of yoga-based courses, Ayurveda, Sanskrit literature, typical art styles across states, weaving skills in textile domain, organic agriculture, classical songs and dance forms, healthy Indian cooking styles etc.

Sports could treat as a separate and compulsory study with better opportunities and scope in an affordable budget.

Evaluation of teachers through appraisals should be a healthy and mandatory process to ensure individual effectiveness and the methodologies devised to do so require a complete change so as to complete the loop of outcome-based education. The education ecosystem must understand value-based roles and responsibilities to meet the multiple demands of teaching-learning experiences.

State or district-based government officials should provide survey on a regular basis in all education organizations involving teachers and students and even senior members of the

society in the process for safe and fair data gathering process to build a motivating zeal and confidence among educational heads to give in further efforts based on the survey. In this way all members of a society would feel the sense of a responsibility which would lead to their professional growth and an effective trust and need based learning process.

As said by Tagore, "The highest education is that which does not merely give us information but makes our life in harmony with all existence."

19. Innovative Approaches in Teaching –Learning Process of Engineering Education

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Abstract

India is one of the largest producers of engineers in the world. Due to its rapid advances in technology and Intellectual science, and a global progress toward outcomes-based education, it requires variety of challenges and changes in design and delivery of engineering education. Even though we have more effective well- defined instructional technique, till now it not be validated by careful and repeatable research. So, it is important to implement newer techniques by gradually and systematically without compromising the syllabus coverage. Therefore, in this study we revealed the exacerbating problem in instructional development and learning approaches that must be developed in the field of engineering education.

Introduction

Instructing strategies fluctuate by teachers. Some address while others illustrate. Some attention on standards while others deal in applications. Some stress memory and recollecting realities while others take a shot at comprehension. Every one of

these sets of instructing styles takes up opposing positions yet each in its own privilege is important and fundamental. Correspondingly, learning strategies differ by applicants. A few students learn by observing and hearing while others learn by acting and reflecting. A few students learn by instinctively making sense of things while others learn by thinking and rationale. A few understudies learn by retaining and drawing analogies while others learn by building scientific models. Every one of these learning techniques is likewise legitimate and exceptionally gainful, each in its own right. Since there are such huge numbers of various facilitating styles and learning styles, bungles in educating and learning can and do happen.

Reviews:

Quality education does seem un-measurable because it evolves with time and technological advances and also depends on the national context. From the decade, academicians and researchers develop a greater number of teaching models to evaluate a system. It so because of challenges and overwhelming task in effective engineering teaching process. But the viewpoints suggest that there is much to be learned about the factors which make teaching good and effective. Therefore, additional research should be focus on Training Module, problem-based learning (PBL), and Assessments. Hence instructional performance and students perceptive plays a key role in students learning and academic achievement.

Instructional practice:

Facilitation can be significantly improving with the aid of modern instructional methods such as ICT, design tools, software and numerous assessment techniques. The media mentioned target our sensory memories and convert them as verbal and pictorial model and integrated as long term memory. It helps learners to Self-exploration, break monotony and develop interaction among learners. Employing ICT in Teaching-Learning process may depend on requirement of industry. Because the industry requires engineers those had sufficient understanding of the operation and limitation of design/Software tools. There forth to attract the students' teachers must update their skills to use these tools effectively.

Compendium of learning components:

It is important to relate student with content in teaching. The teacher can improve the efficacy only by considering the component like Motivation, Perception and attitude of the learners. Here are some learning principle needs for engineering education.

- Provide structured objectives relevant to their improvement level
- Improve learners' retention mode by ICT classroom
- Repeated practice for problem solving
- Co-operative Learning (Group processing)

- Feedback

Teaching and Learning Styles

In order to get more desired quality engineers, we faced more difficulties in gearing engineering education. So, learning styles and instructor teaching style are parallel and vary naturally from one to one. Hence sticking with one may not create enjoyable learning environment and create monotony among learners.

Learning model classifies students on a number of scales related to how they receive and process information. Also proposed in parallel, teaching style depends on how well they address the projected learning style components. Based on Felder and Solomon style the learners are categories in to four. They are

1. Sensory- Intuitive,
2. Visual-Verbal,
3. Active –Reflective and
4. Sequential- Global.

Hence both Instructor and learning style should match one another. Due to frustration on the part of the teacher and missing opportunity by the student, learning style of the student mismatch with the traditional teaching style.

Problem Based learning

PBL is simply annex of the traditional lecture and is very necessary for engineers. But a greater number of students are not interested in solving unseen problem as it requires higher level of skills. Therefore, to develop these skills among students, here it is a way of practice student with closed ended problems.

In-Class Activity practices

Active learning techniques can promote in engineering classes, includes Jigsaw puzzles; review of muddiest point; Think- Pair-Share; quiz bowl for studying; use of multi-media; use of props; candy questions; mind breaks; engaged tests; overview, prime, drill, check etc [1,2]. An engineering class can be made interesting and enjoyable by involving students in these activities beyond the typical classes required.

Flexible learning environment

Flexible learning is creative methodology for conveying well designed, student focused and Interactive learning condition by using the qualities and different methods of learning working together with Instructional structure standard and use of time. In this FLE student make over to connect content with skills. When the teachers are working more collaboratively, they see connection across the skills and content of their specific courses. At the point when the instructors are working all the more cooperatively, they see association over the abilities and

substance of their particular courses.

Creative assessment and Evaluation

In order to understand the student difference in their attitude about teaching-Learning and Instructional practice the assessment and evaluation was carried out in class due to,

1. Get immediate response
2. Grading, Selecting & System accountability
3. Give feedback on current understanding

An assessment has an important role in engineering education. Without fix to older technology the assessment may carried out with newer techniques. To improve the learning, instructors inform student to summarize the keywords of their lecture in boards as a self-assessment. Leadership board is also another authentic process of evaluating leadership skills of students among groups. In this student were grouped and their daily activity performance was noted and graded.

Conclusion

The learning styles of many designing understudies and the instructing styles of many Engineering educators don't generally coordinate. Many building understudies are visual, inductive and successive students. Many Engineering educators and Engineering programs then again are sound-related, deductive and instinctive. By accommodating different learning

style, the teacher can able to teach wide variety of student

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20. Strategies for creating effective learners in Classroom

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An effective teacher has a wide-ranging repertoire of different teaching and learning models, strategies and techniques and knows how to create the right conditions for learning and hence the learning experiences in the resource are those that we often associate with 'the hidden curriculum'- what we decide to teach because it helps students learn and thrive in our classrooms.

Strategies for creating effective learners are categorised in to following four sections.

Section 1. Creating A Positive Learning Environment

Section 2. Motivating and Engaging the Learner

Section 3. Creating A Classroom Learning Community

Section 4. Developing Pathways – Making Career Connections Why should we use the learning experiences in this resource?

1. Students develop the interpersonal skills required to interact positively with others in learning experiences that

are designed to help them feel welcomed, valued, safe from threat and aware of their own responsibility in contributing to the positive state of the learning environment.

2. The learning experiences acknowledge the differences in the various ways students learn best, recognise the vast differences in prior experience in a classroom and therefore provide opportunities for students to learn and demonstrate their learning in different ways.
3. The learning experiences in combination with those in 'Creating A Positive Learning Environment' and 'Motivating and Engaging the Learner' help students work and learn together in groups, value each other's' differences and solve, prevent or minimize the problems and conflict that arise when working with others.
4. Providing opportunities for students to explore occupations of interest related to high school subjects increases the likelihood of students enrolling in the courses they need to prepare for this area of career interest. Teachers in all subject areas have a means of illustrating for students how their subjects enhance preparation for occupations of interest.

For creating effective learners, I had crated some observable as follows:

Independent Work:

- Demonstrates responsibility in attendance,

- Punctuality and task completion.
- Works well without supervision.
- Accepts responsibility for completing tasks on time and with care.
- Accepts responsibility for own behaviour.
- Follows routines and instructions independently.
- Selectslearning materials, resources, activities independently.
- Uses time/schedules/ agenda effectively.

Problem Solving:

- Solves problems without help.
- Thinks of alternate solutions and makes plans to solve a problem.
- Makesconnections between different problems and solutions.
- Applies successful strategies to new problem situations.
- Develops original ideas and creative solutions to solve problems.

Class Participation:

- Actively participates in discussions and classroom activities.

- Contributes information and ideas.
- Accepts a variety of roles during group work.
- Assumes responsibility of fair share of work during group work.
- Encourages others to participate.
- Works towards the goals of the class and the group.
- Listens to others without interrupting.
- Shows respect for the ideas of others.

Homework Completion:

- Comes to class prepared for learning.
- Puts forth consistent effort.
- Completes homework on time.
- Shows attention to detail.
- Demonstrates interest in homework assignments.
- Organises materials and equipment effectively.
- Begins work promptly.
- Attends to task at hand.

Initiative:

- Demonstrates self-direction in learning.
- Seeks new opportunities for learning.

- Responds positively to challenges.
- Explores and uses a variety of learning strategies.
- Observes, questions, explores, investigates
- Seeks additional and new information from a variety of sources.
- Demonstrates a positive attitude toward learning.
- Generates questions from inquiry activities.
- Participates in non-academic activities.

Goal Setting:

- Assesses own work based on specific criteria Identifies goals.
- Identifies steps or actions to reach goals.
- Identifies strengths and areas of improvement in own work.
- Demonstrates self-direction in goal setting and goal achievement.
- Accepts feedback on performance from others.
- Uses feedback to improve work and monitor learning.

Cooperation with others:

- Demonstrates a willingness to work with others.

- Demonstrates a willingness to work with anyone.
- Assumes responsibility of fair share of work during group work.
- Respects the rights and opinions of others.
- Respects property of others and the school environment.
- Volunteers in the classroom and in the school.
- Follows classroom and school procedures.
- Assists peers with work when needed.

Use Information:

- Identifies a variety of sources and resources to collect information.
- Demonstrates a variety of skills to organize and manage information.
- Accurately analyses and assesses the value of information.
- Demonstrates creativity in assessing information and ideas in drawing relevant conclusions.
- Asks questions to clarify meaning and ensure understanding.
- Integrates learning from subjects and areas.

We all have unique ways of learning that change and develop over time as we build skills and have new experiences. Some learners are equally 'at ease' learning from a visual source,

an auditory source or a written source. Some learners prefer one over the other. Some prefer to move around, listen to music, discuss with others, 'do' something first then talk or read about it or vice-versa. Learners may also have preferences for the ways they choose to demonstrate their learning. Each classroom of learners has a unique profile.

Teachers can uncover the learning needs of their students by asking students what their preferences are, by using various learning styles analyses tools (e.g., Learning Styles, Multiple Intelligence) and by observing. Teachers can differentiate instruction and assessment based on this information by providing choice or student groups.

For various learning styles analyses tools requires about five hours of study and five hours of work in the classroom which contain

- A clear presentation of the main ideas;
- Case studies;
- Tasks and classroom assignments;
- Practical tips;
- Opportunities for reflection;
- A summary of related research;
- Suggestions for further professional development and guidance;
- An opportunity to set future targets, perhaps related to

performance management; Accompanying video sequences.

21. Ideas to Improve Teaching Practices in India

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As we know the traditional teaching mainly based on the fact that a teacher explaining a topic and students taking notes. It's quite or may be useful on some occasions but today it revolves more around interest encouraging & tuning the topic to the student to awaken their curiosity, interest as well as desire to learn.

Now-a-days Engineering studies are dream for a many student and with next expectation of to get immediate job. But they should be aware of their own intrest, talents, strength & weakness. At the same time there are some challenges in engineering colleges eg. Quality of students admitted, benchmark for Asst. Professors, existing academic syllabi. Etc. By considering all this scenario following techniques will definitely find a way to deal with it.

Proposed ideas to improve teaching in Engineering.

(1). Improving learning method of students-

As we know there are 3 types of student in class slow, average and fast learning. By taking consideration to their ability we may arrange/categories separate and understandable

lectures.

(2). Set the Benchmark or Timely educating the teachers-

It is fundamental requirement to train the college teachers with skilled and practical or industry related technology, knowledge. So that they can share or give importance to practical knowledge and their credibility as well. More importantly to understand how their education is going to apply in industry practices.

(3). Teaching- Learning Process-

This is the actual most important part of this discussion. It comes to "How you deliver the knowledge.?" with a skill, everybody has knowledge but teaching requires skill. Knowledge cannot be forced, it can be tuned or made interested.

i). Visualization of topic or concept

ii). 10 min. preview of what taught in last lecture by asking some questions randomly to few students from class.

iii). Keep the subject/topic interesting by means by using some funny facts related with cricket, films, any sports. etc

iv). Group study with Co-operative learning, Group wise assignment & seminars.

v). Frequently Industrial visit should be arranged to directly transfer practical knowledge.

There are many other methods to improve the teaching-

learning experience, but not limited. Thus we will have to set benchmark, techniques nd criteria on the basis of students learning style, environment, available resources.. etc. for productive, encouraging learning and outcome-based education.

22. Modernization in Teaching Learning Process

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1. Introduction

An education system aims that the learner must be able to understand the concepts and he must be able to apply these concepts in solving practical problems existing in society. Meeting the demands of current society is becoming complex due to rapid changes in technology. So, education techniques are required to be amended to meet the social and technological demands. Indian institutes are changing the teaching methods from the conventional ones to the more advanced ones.

1.1 Conventional teaching methods

A teaching method is the heart of an education system. It should be equal to all the learners of different caste, religion, gender and region. Conventional teaching methods include lecturing and face to face interaction in classroom. Lecturing method is based on one sided input i.e. from teacher. The teacher delivers the content to learner and learning level can be measured with the help of written examination. Whereas face to face interaction includes question answer sessions, in which

questions can be asked from either side

i.e. from teacher side or learner side, the discussion improve knowledge of both teachers and students. Unlike lecturing method, face to face interactions provide better understanding and create interest among learners.

1.2 Advanced teaching methods

Advanced methods include visual aids, project method, story-telling or play-way methods.

1. Visual aids are used from primary schools to the higher education institutes in India. Examples of visual aids are charts, videos, and presentations. This technique is highly effective and captivates the interest of many learners. It provides life-long learning as it enables the learner to understand the concept by images and videos.
2. Story telling or play-way method is mainly used in primary and secondary education where morals are conveyed to learners by telling some story. Higher education institutes do not use this kind of method at larger scale. Some subjects which provides knowledge about societal responsibilities use this method.
3. Project method is mainly focused upon application of knowledge gained. This method is used in both primary education and higher education. This method not only urges the learner to understand the concept and also helps in dealing with the real problems.

2. Techniques to improve teaching practices in India

Both conventional and advanced methods can be applied in classroom or they can be implemented outside classroom. It is necessary to enhance the quality of teaching which in turn provides improvement in learning. So, technology should be incorporated in teaching methodology.

2.1 Smart boards

Traditional boards require chalks and marker pens to write on them. It consumes a lot of time, so less content is covered in given period of time for course. Also, it is difficult to draw complicated diagrams manually. These issues are well addressed by introduction of technology in the form of smart boards. With the help of images, videos and presentation, teacher can easily explain the complicated processes within few minutes. Learners can also understand the processes through images and videos of real components and systems. This also enhances the ability of learners to identify the particular system and deal with it in real world. Most of Indian higher education institutions have replaced conventional black/white boards with smart boards.

2.2 Internet

Digitalization in India has made it possible to detour the teaching from classrooms to all over the world. It has shown the way to learners from rural areas to gain knowledge free of cost

and at their pace. Learners can gain knowledge from teachers present at global scale. It not only motivates the learners, but also provides time for some part time jobs.

2.3 E-classrooms

E-classrooms are virtual classrooms that can be created by a teacher for any course and interested learners can join the class. It is nothing but teachers-learners group where teachers can give lecture, post notes, assignments and tests. Discussion time is not limited. Learners can post their doubts at any time. If a faculty utilizes e- classroom, he/she can give instructions, deliver more content in less time which results in augmentation of learning. This process also triggers the critical thinking and problem solving ability of learner which boosts his/her overall performance. As the lectures are available at all times, learner can retake the lecture any time and it is also easy for faculty to update course content.

2.4 Teaching- Learning Websites, blogs, Apps and Massive open online courses

There are many websites and apps which provide information relative to a particular course or many courses. Teachers can also create their own website or blog and share their knowledge. Not only teaching, assessments can also be conducted online. The learners can also post their doubts or questions related to any subject, which can be answered by any

of the person having knowledge about it. Liberty in sharing of knowledge enable learners to work on any subject. In addition to classroom courses, they can take any course online, this enhances the scope of getting jobs in multiple fields. Learners can gain knowledge and apply it in doing complex projects which need knowledge of more than one field. National Program on Enhanced Learning is one such website which is widely used all over India. It contains the course content in the form of both notes and video lectures. Learners can take lectures free of cost and enhance their knowledge. Swayam digital is another example of online learning. It is global public platform for both teachers and learners. Any faculty can create his/her course and upload it and interested learners can take the course. Many such platforms exists like Coursera and edX which gives various courses.

2.5 Use of Software Tools

Use of software tools in preparing and delivering the content helps in improving the overall teaching learning process. For example, Prezi helps in adding audio to the presentations and images. It can also animate presentations. Auto Cad is another software tool which allows the user to make a model of any system and it can also project three dimensional views of a component. View of any component from all side helps in understanding the system better from each angle. This software can be used to deliver the content in simple and professional manner.

23. Imaginative Techniques for Educating

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Today it is impossible for students to absorb all of the information in a lecture (limited short-term memory) .so we need every student to understand and learn the concept. For this need more effective approach that is students actively thinking and learning.

For effective teaching approach we need to follow and implement certain Strategies like, Student-centered instruction (Adult learning/Adult education), Problem-based learning, and Competency-based (outcomes-based) instruction (OBE).

In Student-Centered Learning we have to Substitute active learning projects and experiments. In this we have to assign open- ended questions and problems.

By using this approach students can understand the theory, principles and concepts.

In Problem-based learning, students are able to analysis the problems and conquer the optimal solution by implementing this type of approach.

In outcomes-based instruction, the course instruction itself we need to specify the course objective and outcomes .in this

approach we are instruct and teach the topics based on the course objectives and outcomes .it will help the students to know the outcome of every course and respective to the curriculum-related.

Innovative Methods of Teaching

We think of the effective teachers we have had over the years with a sense of recognition, but those who have touched our humanity we remember with a deep sense of gratitude.

- We think too much about effective methods of teaching and not enough about effective methods of learning.
- Teaching must include two major components sending and receiving information
- Any communication methods that serve this purpose without destroying the objective could be considered as innovative methods of teaching.
- Benefits of innovative methods are Improve Learning process and Strengthen governance
- Student's Expectations
- Want solid knowledge base and real-world applications
- Want clear and organized presentation of material
- Want to be stimulated, active and participatory
- Want to know why (how does this activity, reading connect to my future career?)

- Want faculty to be enthusiastic, helpful and engaged
- Expect "customer service"
- Want face-to-face contact but accept boundaries

Faculty's Challenges

- Time
- Keeping up with their field
- Dealing with students with varied backgrounds and skill levels

Strategies

- We must understand learners
- Accept differences among students and between students and faculty
- Engage students in setting goals and expectations
- Be flexible, creative and try not to be surprised by anything that happens in the classroom!

Students

- Learn best when outcomes are clear and integrated into relevant context
- Need practical - not hypothetical - experiences
- Competencies

- Increase relevance and accountability in curricula
- Challenges
- Too many competencies
- Levels vary
- Assessment

Teaching Strategies

- Set context
- Tie topics together continually
- Pre-assignments
- In class lectures and activities
- Opportunity to practice – with feedback
- Audience response system "clickers"
- Short but realistic examples

Assessments

- Check-in
- Are students learning?
- How do you know?
- What could be improved?

Analysis of Traditional Method of Teaching Limitations

- Teaching in classroom using chalk and talk is "one-way flow" of information
- Teachers often continuously talk for an hour without knowing students response and feedback.
- The material presented is only based on lecturer notes and textbooks.
- There is insufficient interaction with students in classroom.
- More emphasis has been given on theory without any practical and real-life time situations.
- Learning from memorization but not understanding.

Innovative Methods of Teaching

I hear and I forget.

I see and I believe.

I do and I understand.

- Confucius

Multimedia Learning Process

- Text
- Images
- Audio

- Video
- Animation

Traditional and Multimedia Learning Traditional Method – A One Way Flow

Multimedia Learning – An Interactive Learning Process

Mind Map

- Innovative way – Mind Map.
- Developed by Tony Buzan 1960.
- Making notes with keywords and images.
- Visual and sensory tools at our disposal.
- Recollect information for long time.

An Example of Mind Map for Scalar Quantities Z to an Approach

This approach attempts to explain the application part of a particular concept first.

Strengths

- Makes a particular concept clear
- Students develop interest to know exactly the concept.

Creates long lasting memory/correlation of a concept.

Weaknesses

- Take quite long time for a teacher to introduce a concept Initial difficulty in understanding a particular concept will be encountered.

Mnemmonics - Words- Words –Words Approach

- Concept approach.
- Associated meaning.
- Increase word power
- Dictionary.

Role Playing and Scenario Analysis Based Teaching

- Role playing
- Practical approach
- Theory supplemented by practical.

Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young.

LEARNING NEVER ENDS

24. Knowing Interest – A best teaching practice model

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Conventional teaching practice in India has always been considered as burdensome for students. As guardians of students always put a famous proverb "PadhogeLikhogeBanoge Nawab, KhailogeKudugeBanogeKharab". It means children would succeed when they would study and would be spoiled if they play. Many times, this assertive pattern has been adopted by the Indian parents on their children to study in the format of opening books and notebooks. Teachers too become assertive on conventional type of teaching practice in India. They also adopt punitive measures in order to get the task completed through which the students cram the concepts not learn or understand.

But now much of the improvements have been done in our educational system to improve the teaching practice in India. Many newer practices have been inculcated in Indian teaching practice like story-telling, clay-making, portrays, puzzle-games, audio-visuals, role-plays etc. through which Indian teaching practice has been speeded up. These are the techniques which are implied which teaching. But most important is the tool which is required to implement the teaching techniques for improving the teaching practice in India which is still absent in most the schools

and even in the mind of the guardians which can be a best practice model for students.

Best teaching-practice model or tool we can say in research arena which we as teachers and guardians can apply is "knowing the interest of the child". It means when a child is admitted to the school, he/she has a fear of getting separated from his/her parents. This separation shifts a child in uncomfortable mode through which he/she performs undesirable activities. Actually a child, from the birth is an attention seeker and wants other to give attention to him/her. But the moment he/she is not given attention he/she starts crying. The same activity a child performs when he is admitted to the school. There he/she gets familiar with a new world. He/she meets to his/her peer-mates and teachers and tries to adjust in that environment. But it's not easy to be adjusted for him/her in a different setting so easily. That's why it's the responsibility of the guardians to look after and observe the activities of their children carefully.

In India, mostly or nobody bothers or care for the interest of child. That's why the children feel neglected and they are not remained well-groomed throughout their entire life. A time comes when they (the children) have to opt for the course they want to study; when they have to choose life partner in their life according to their suitability, they have to rely on their parents' decision on what to do further according to their parents. Such children become rebellious and many a times they perform suicidal tendencies. This is all a psychological factor which needs

to be understood.

At last to conclude my points with above mentioned statements that it is the responsibility of the guardians and teachers to try to know the interest of the child first. This is an effective tool to incorporate. As we all know various techniques of teaching- practice which is of self and also been imbibed from foreign curriculum teaching pattern, but to put into force the knowing of the interest of the child like what he/she wants, is the best model/tool for a child to be well-groomed, personalized and decisive in his/her life.

25. Effective Teaching Approaches need to be adopted for better Future of Students

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From the last several years effective teaching management became a significant factor to create a value in the education system for better future of students. Here I have mentioned some points for effective teaching approaches.

- Interest of subject should be created before explanation of any course/chapter.
- The quality of teaching should be assessed regularly and education qualifications of the appointed teacher should be verified as per norms.
- Teacher should try to deliver e-lectures i.e. PowerPoint presentation, e-Quiz video lectures etc. to explain complex topics in a lucid manner.
- Teacher should try to deliver lectures to the students in the form story narration.
- Continuous monitoring of students on the basis of what they learn and how they implement their knowledge.
- Teachers should encourage students to ask doubts in the

session of last ten minutes of the lecture.

- Proper channel should be created among students to get their doubts/problems related to particular subject.
- Tutorial classes should be taken before performing experiments.
- Teachers will be interviewed about their views about subject knowledge and students will have to give feedback time to time interval.
- Topper of your subject should be rewarded in front of class students and other students need to be motivated.

26. Different Strategies Followed for Different Students to Improve Teaching Learning

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Nowadays education quality is going down in India, from the last second place is Indian education quality. So, teachers are the main role in improving student's quality as well as education quality. In our point of view, the following strategies will use to improve education quality. First of all, Teachers should be knowledge of basic concepts, then only they can easily delivery the concepts to students. Next, the teachers should follow these things, well prepared in guiding lectures, giving an outline of teaching at the beginning of each lecture, Lecturer should have confidence in delivering their lecture, Lecturer delivers lectures with boundless interest, Important information is repeated and highlighted Lecture is clearly delivered. The lecturer is punctual to the Class. Depending upon students' knowledge we have to convey the knowledge. The second one is categories the students from poor to the brilliant student and follow the different strategies to increase the quality education. For poor students we can recall the basic principle and concepts, teaching should be in step by step and ask them to solve more problems. Give the assignments and analyse their results. Ask them which topic is not clear why not understand the topic these things we have to

discuss with students. Daily assignment and problem-solving are needed then only their thinking should be in a subject oriented. For Average students teach the basics concepts and directly solve the problem. Ask them to do more assignments for each topic and discuss some recent trends. do projects regarding each topic. For brilliant students directly teach the concept and gives real-time application projects. Using PowerPoint presentation and video animation for better understand. Tie up some foreign university send them to study in a good university at last one year because we are in a very lag in recent trends. Measuring students learning answered questions about what type of learning took place in the course, while uncovering students' perceptions often answered questions about how learning occurred. Industrial training is must for students then only can able to understand what happens in industrial and how industrial people solving the problems these things students must know and in a laboratory class deep learning is very important students should the full mechanism principle recent trends everything full history study about machines. In each and every topic student do the mini projects by own. Reduce the syllabus content improve the deep learning in each topic this will gives good thinking ability for students. Project-based learning is an effective and enjoyable way to learn. It also develops deeper learning competencies required for success in college and job Project-based learning uses factual world scenarios, challenges, and problem to engage students in acute thinking, problem-solving, teamwork and self-management. Once students solve the problem or challenge, they present their solutions. It

progresses learning and provides opportunities for students to use technology.

27. Need of Public Speaking (or) Public Speaking: A tool to Improve Teaching Practices in India

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In India the education system we follow is more theoretical in nature and needs self-learning or imagination skills in order to understand the same. Majorly the teaching done in India is more of a one-way communication as almost all the schools/colleges fail to introduce their students with the power questioning in the early stage of teaching itself. Doing so the learner will develop questioning skills that will help both for the lecturer/tutor as well as the learner/student in order to give feedback to the learner with respect to his understanding (Hall, 2007). This skill needs to be imbibed in a student right from his childhood by encouraging students to ask questions in order to remove the fear of being judged. Public Speaking can be used as an important tool in developing this questioning skill in young learners.

Introducing public speaking right from a young age is the ideal way of removing the fear of being judged in pubic. Dr. David Carbonell had stated that "Fear of public speaking is the most common of all phobias". This fear grows stronger as the learner's belief system on this fear becomes stronger with

growing age. Finally, this fear will affect the way a student chooses college coursework such that public speaking is not required, at work out of mere fear of public speaking professionals pass up assignments and promotions that would require speaking in public (Carbonell, 2010).

Similar to a doctor diagnosing a patient with fever by finding the roots (how the fever was acquired/developed) one needs to identify the source of the fear before overcoming it. In an effort to find the root cause of this speaking fear, psychologists refer to a term called "Evolutionary Psychology"; the prime objective of evolutionary psychology is to research on the design of a human brain. In other words, evolutionary psychology is a part of psychology which uses the principles and information acquired through evolutionary biology. Evolutionary psychology is not an area of study whereas it may be defined as a way of thinking about human psychology that can be used in applying to any topic. 30 years later after Darwin's "Origin of Species", William James an American philosopher and psychologists had emphasized more on "instincts" which are referred to as dedicated neural circuit that are found common in each member of a species and are the results of that species' history of evolution. These specialized circuits taken together constitute to the term "human nature" (James, 1890).

With reference to the basic principles derived from biology, principle 2 states that "Our neural circuits were designed by natural selection to solve problems that our

ancestors faced during our species' evolutionary history" and due to which we have some inbuilt reflex or call it human nature to react to a particular problem whereas if we consider principle 5 it states that "Our modern skulls house a stone age mind". Principle 5 tries to explain the common instincts which we have been passing it through our gene's generation after generations right from stone age.

Now, let us see how this is related to the common human phobia: "The fear of public speaking".

Generation after generations for more than ten million years human brain has been sculpted slowly by accepting the circuitry (instinct) to solve the day to day problems of our hunter-gatherer ancestors. In the stone age era, our ancestors were successful in fighting carnivorous creatures, natural calamities, extreme climatic conditions, etc., together forming groups or teams. On the other hand, if a human is alone he is weak and chances of falling prey to a carnivorous was very high. In those days in order for a human to be a part of the group needed him to be a good speaker in order for him to showcase what he can offer or serve by being part of that group. The ones who fail to portray or present their skills may be removed from the group cause of lack of contribution to the group and finally leading them to be left alone. Hence, this fear of being separated (left alone) from a group led to the fear of death in the minds of our ancestors. Even though humans have evolved from creating communities to civilization to villages to gram panchayat to a modern urban world, this fear of speaking and that it may result

to death otherwise has been passed through our genes (Tooby, 1997).

With the advancement in science and technology we are lucky that in today's world we neither have to deal with encountering a carnivorous animal on your street nor do we have to worry about extreme climatic conditions and living alone will not lead to death which was not the same in the stone age era. The term called "stage fear" is something which is similar to any fear and mostly associated with the fear of death. For Instance, if you happen to see a deadly snake, you will fear death considering the possibility of being bit by its poison whereas while experiencing stage fear we tend to feel and fear death as it is being imbibed inside our heads. One may even debate that some people do overcome the public speaking fear right in their first speech itself but in reality there have been born speakers who would have got a modified genetics considering their parent, grandparent had overcome their public speaking fear by practice or other public speaking techniques which would have led into this genetic evolution. Apart from the above possibility it is common to have this fear and at time even the greatest of speakers when interviewed say they do fear for the initial 30-40 seconds while facing a mixed audience and the fear is suppressed as they start speaking and getting to know their audience.

This research allows one to understand the root cause of the fear to speak in public and by practice this can be eradicated not only from one's mind but will also help in modifying the

genetics of his future children and grandchildren. I would like to conclude this research letter by insisting that Public Speaking should be made as a mandatory part while learning languages (any language subject). Public speaking should be taught and graded during schooling itself since this skill not only overcomes one's fear but also helps in building social connections, career growth, inspiring others, to speak your mind, etc.,

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28. Teaching is for Knowledge Spreading, Benefit to Society and Self growth is Incidental

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Most people think of teaching as delivering a lecture in the classroom only- as a demonstration method. Some think of teaching as knowledge sharing method. Few know of teaching as a challenging and interesting method in term of delivering how to deliver the content in an easier and simple way. In teaching practice, it totally depends on the learner and the learning process. Learning is all about curiosity which enlightens from the heart or affection from anything to encourage us to know about the things around us and understand them. If the motivation of learning comes from the heart it seems a kind of hobby or art which further reshaped accurately and converted into a professional way and made a reason for growth. If it comes from the reason of affection like satisfactory survival, the existence of life, recognize the things happening around us, know the universal facts, and specific area of deep learning. Better learning always involves an excellent way of teaching practice and a good

platform for exposure. Somehow learning is more related to memory because both have different phases in human's life. Learning involves social & ethical values, manners, discipline, fundamental education, and particular education qualification. Whereas memory has many ways to memorize the content like by reading, doing, talking, watching, observing, and listening. Out of these different people have different priorities based on their interest in understanding or remembering the things. In academic institutions, learning objectives understand the scientific facts, concepts, theories and their application for surviving life are to be achieved by teaching practices.

Previously the Educational learning depended on the instructors/teachers (traditional demonstration process), but these days it is switch over to learner-centric from teacher-centric. There are various supporting reasons for this transition but more attention required for teaching practices in effective ways for sustaining the values of the teacher-centric process. In the teacher-centric learning process, there is a strong correlation between the learning and learning process because each one is supported by different factors. Learning has four attitudinal measures are Motivation to learn, Quality of Instructor, Quantity of learning and Quantity of studying whereas Learning process involves Demonstration (Traditional method), Reading, Kinaesthetic (Physical object), Visual and Auditory methods. These kinds of the learning process are mandatory in for classroom teaching practices because students have a different level of understanding and remembering the things. It is

mandated for the teaching process that every topic has to be delivered in class with appropriate teaching pedagogy or teaching tools. A very interesting warm-up session is necessary for the class for student's attention. The objective of this warm-up session includes the application of subject, the reason why it is including in their study, physical significance in real life and how much they are aware of or not.

One more supporting method in the learning process is a "General discussion" within a friendly atmosphere. For this method a mandatory thing is- before coming to attending the class, students should know what is the topic will discuss in class and ensure that they have all the notes and reading materials in advanced. Resultant of general discussion and warm-up session produces more thoughts and facts come up in regards to the topic. After that, the traditional demonstration teaching process comes into the picture along with the use of more and more teaching tools. A demonstration should include practical approaches, real examples, relating the things and hidden facts with life so that it fulfills the objective of teaching. Other possible outcomes of this warm-up and general discussion method are: it minimizes the cultural gap between the students, motivates students to avoid latency, improving their listening and narrating ability, group learning and adopts a deep learning approach in their mind or heart and encourage them to participate in those methods.

Improving in teaching practices is not only the solution of multidimensional development of students it is also required to

improve the assessment methods because we judge them with the help of assessment methods. Peer evaluation and self-evaluation are the tools to recognize the limitations of think, watch, observe and participate. Here peer evaluation depends on the implementation methods, context, and learners but self-evaluation will help them by comparing the present knowledge level with the past knowledge level. Action and Emotion based assessment are surprised quizzes, random question-answering, group assignments, and teamwork activities. These kinds of methods are judging their behaviour, attitude, the accuracy of the subject, applying the concepts, problem- solving skills into an uncertain environment.

One more very effective assessment dimension is continuous and frequent question-answer (QA). The mechanism of this is like, once they clear the first QA phase for a particular topic they will go to the next phase, otherwise they have to stay in that phase. They have to read and read many times until they clear that stage.

For example, a very basic method of judging the knowledge level of the higher secondary student with the help of their grades in the examination. Instead of our new suggestion "Understanding News Paper" will support to judge them in their maturity level and multidimensional knowledge. Reading of the newspaper involves the reading art only but the understanding of newspaper involves various factors, because one newspaper (International/National standard) contents complete and necessary information of human life, so that for understanding

the newspaper students should know basics about geography, politics, economics, science and technology, sports, health and wealth, journalism, spirituality, society, and industry issues that happening around us. If any student understands the things/news it means he/she know the basic facts and concept supporting that news. It causes the ability to think, thought process among the students. “Think in the right way and put at the right place is the key of learning objective.” And “Teaching as experience sharing” is the key of the teaching process.

29. Strategies to Improve Teaching Methods in India

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Abstract:

The paper proposes an efficient strategy to improve the teaching practices in India. The primary emphasis is to incorporate the technology into the teaching practices for enhancing the essential teaching and learning experiences. The advent of new technologies and tools appear to be powerful means for improving technical education from teachers as well as student's perspective which involves activity-based teaching learning pedagogy.

Keywords: Teaching learning process, Good teaching, Technology, pedagogy.

Introduction:

Teaching is a developmental process which includes the interaction between the teacher and students. The good quality of teaching can only be improved by adopting the technology

into the teaching methodologies. Actually, effective teaching depends on the objectives, the student, the content and the teacher. But the teaching transfers from passion to profession thus results in demand of the good teacher and the teaching.

Challenges in teaching profession:

- Lack of resources in high end institutions.
- Low salary for teaching professionals.
- Available time of faculty will be wasted for clerical jobs.

Factors affecting quality education:

- Students admitted in rural side are lack in communication skills which paves a way that faculty should always be available for clarification.
- Board and chalk method are now outdated and best method should be identified to improve teaching.
- Learning from memorization but not from understanding.
- The material is presented only based on the lecture notes and text books.
- The single kind of approach should not able to fulfil the criteria of good and effective teaching, therefore multiple approaches are necessary.

Proposed strategy to improve the teaching and learning practices:

- Separate syllabus should be framed for slow learning and fast learning students.so enough time given for slow learners to pick up and pass in studies.
- Colleges should be categorized as colleges with advanced facilities, required facilities and sufficient facilities for creamy layer students, moderate and slow learners. Also, syllabus should be framed based on that.
- The teachers should have extensive content knowledge, pedagogical skills for teaching the particular subject matter, capacity to manage and assess the diverse students and know how to engage and motivate the students.
- Teacher can represent the content of the material in best meaningful way by using the multimedia technology.
- Teacher can interact through the dynamic multi-media content by using Smart board and students can write the notes in digital ink and save it instantly and share them very easily.
- Teachers can use the mind map technique to share the knowledge in more effective and innovative way. The primary focus of mind map is to develop the creative thinking in the student's mind.
- The teacher should identify their gaps for effective

teaching, technical skills, making teachers, apply the knowledge and skills are learned. Also in this teachers are formed as groups to update their knowledge.

Conclusion:

Thus, the good teaching must meet the ultimate goal of developing such environment which enables the students to become a better learner and smart global citizen to face the problem of common man and promote the equality and human development. For a real challenge, the technical education is too aware of psychology of the slow learning students experience, all the faculties need training on course, curriculum development, instructional design, methods to encourage active learning and problem-based learning.

30. Strategies to make teaching more effective in college or university level

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Teaching is a dynamic process in which the learners are given instructions on the relevant area or subject with a view to bringing permanent modification in the learners' overall personality. The process of teaching helps and encourages learning on the part of the learners. From the dawn of human civilization, teaching had to take different shapes and forms depending on the socio-cultural, socio- economic and socio-political scenario of the then society. With the passing of age, the system of teaching had to undergo lot of changes complying with the need of that time and the role of teachers also changed from time to time. Teaching is a process of making someone know or learn something related to a definite area with definite purpose. In other words, teaching is a very innovative and creative system where a person called teacher, makes full use of his knowledge just to help and encourage another person called learner to widen his outlook in a certain area of study with the required modification in his behaviour. The teaching and learning goes hand in hand complementing each other. With the progress of time and the changing of era, our society has got more complicated with all the changes in the socio-cultural set up, and the role of teachers get also changed. Now, with the

emergence of science and technology in the field of education, teaching, starting from the primary level to college or university level, has been redefined. For the overall development of any nation, education plays a very instrumental part ,because it is only the educated society who can carry their nation to the path of progress and prosperity .Now, in every country, the higher education occupies a place of utmost importance because it provides the required skilled manpower and enriched human resource for the particular field. And in this regard ,the teaching in the higher education level and the role of teachers in this field are considered the most significant. Now, it becomes quite relevant a matter, how the techniques of teaching practice in this level can be improved. Following are the few strategies for the improvement of teaching practices in the higher education level of India.

1. Grabbing the students' attention with some side discussion:

Teachers of college and university level most of the times make mistakes by starting their classes with straight forward lecture on their topic of discussion. This may not attract the students' attention from the outset, on contrary, the students can get inattentive with this approach from their teachers. So, the teachers can involve their students to their class by discussing something with the students according to their interest and attraction.

2. Preparation of the students to your topic:

Teaching at any level demands the process of teaching according to the preparedness and mental readiness of the students. So, before starting the main lesson, the students should be made ready with all the preparatory knowledge and information so that they can understand the present topic in a very easy manner.

3. Building a good rapport with the students:

Students of college or higher education level are at the prime of their youth, so their mental state should always be taken into consideration at the time of delivering the lectures by the teachers. So, teachers of this level should try to get familiar with students' family background, their daily activities, personal anxieties and emotional state of mind. It helps the teachers to be lot more effective in their delivery of instructions.

4. Technology based instruction:

Lack of participation in the classes is a major problem among the students of higher education level. In this regard, the teaching techniques may be improved with the help of modern gadgets and effective devices. If the classes are arranged with the technology- based instruction, it can surely increase the students' participation in the class.

5. Show your passion for the subject:

Teachers of higher education level should present their topic in a way that it may display their earnest passion for their own subject, it may help increase the students' love for their subjects also.

6. Showing the demand of the subject in the field of employment:

Always the teachers should be practical in their discussion, hence, the teachers should highlight the value of their respective subject from the utilitarian field, showing the good prospect of the subject in ensuring employment.

7. Constant up-gradation of the knowledge:

Every teacher of college or university level must be in constant up- gradation of their knowledge in their subject in accordance with the present need, else their instruction will not be as effective as it should be, considering the present need.

8. Raising the students' participation and involvement:

Classes in higher level should be full of variety with the maximum involvement of the students. Teachers should encourage students' active participation in the class arranging debate, discussion and necessary interaction among the students. At last, it can be said that no particular technique is sufficient in

the teaching learning process, rather it is a judicious combination of some flexible strategies which help the teachers in the long run .So, it is well said –Ordinary teachers discuss, good teachers explain and great teachers inspire. So, teaching is always effective if it can initiate learning and bring permanent modification in the students' behaviour.

31. Education Improvement Technique

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Education of our society, has evolved in leaps and bounds in recent years. Traditional teaching techniques, based mainly on a teacher explaining a topic and students taking notes, may still be useful on occasion, but education today revolves more around encouraging the student to awaken their curiosity and desire to learn. A number of different teaching techniques have emerged due to this change in education. Many of these techniques are not new and arisen from the integration of technology in education. The use of technology in the classroom has simply given education a new lease of life allowing us to approach old ideas in new ways.

Flipped Classroom: The Flipped Classroom Model basically involves encouraging students to prepare for the lesson before class. Thus, the class becomes a dynamic environment in which students elaborate on what they have already studied. Students prepare a topic at home so that the class the next day can be devoted to answering any questions they have about the topic. This allows students to go beyond their normal boundaries and explore their natural curiosity.

Design Thinking: This technique is based on resolving real-life cases through group analysis, brainstorming, innovation and creative ideas. Although "Design Thinking" is a structured method, in practice it can be quite messy as some cases may have no possible solution. However, the Case Method prepares students for the real world and arouses their curiosity, analytical skills and creativity. This technique is often used in MBA or M.Tech classes to analyze real cases experienced by companies in the past.

Self-learning: Curiosity is the main driver of learning. As a basic principle of learning, it makes little sense to force students to memorize large reams of text that they will either begrudgingly recall or instantly forget. The key is to let students focus on exploring an area which interests them and learn about it for themselves.

Gamification: Learning through the use of games is one of the teaching methods that has already been explored especially in elementary education. This learning technique can be very effective at any age to keep students motivated. The teacher should design projects that are appropriate for their students, taking into account their age and knowledge, while making them attractive enough to provide extra motivation.

Social Media: A variant of the previous section is to utilize

social media in the classroom. Students today are always connected to their social network and so will need little motivation to get them engaged with social media in the classroom. The ways you can use teaching methods are quite varied as there are hundreds of social networks and possibilities.

Free Online Learning Tools: There is an array of free online learning tools available which teachers can use to encourage engagement, participation and a sense of fun into the classroom. Teachers can create an interactive and dynamic classroom environment using, for example, online quizzes to test student's knowledge. Here are some teaching strategies which could be tried to help the students be actively engaged in classroom. Find Out what motivates students, teach with technology, try some new teaching strategies, effectively communicate with visual aids. change your regular Daily Routine.

New Horizons on Education Inspired by Information and Communication Technologies: Nowadays, society is affected by the information and communication technologies (ICT), challenges that come with the Internet network and the World Wide Web. We are talking about e-society, e-commerce, e-learning, web of things and so on. First of all, ICT introduces e-learning which is a way to learn using networks with a distant tutor. Second, we have digital learning resources to manage, which gives new learning scenarios and disciplines. Third, we can access a lot of pedagogical resources over the world.

Recently, some studies present the finding that ICT are used without a mature integration in educational contexts. As result, sometimes there is no added value to the teaching/learning processes. Blended learning is a new direction to find how to integrate ICT tools to real classes so that the quality of teaching and learning will be really improved. The following set of recommendations are for good use of ICT for learning and move towards positive changes.

- Give opportunity and time to the children to learn ICT from beginning of their schooling.
- Define when and how to use ICT to improve each learning process with a dynamic way to bring equilibrium in a blended mode, face to face learning, e-learning and self- learning modes.
- Analyse the ICT needs in educational institution to implement an adapted information system.
- As with any other product, ICT are to be consumed in moderation.

ICT have to be used in adaptive way depending on the different parameters around the learning process to give positive new horizons. Consequently, the need to invent digital native methodologies for all subjects, at all levels will lead schools and universities to become learning organizations. As a result of the innovative culture of the learning organization, the employees feel the freedom to make decisions and respond to new events.

Using Blogs to Create a Constructive Learning

Environment Educational environments that support constructivism are particularly beneficial to student learning. They increase motivation and information retention by actively engaging learners in the development of their understanding. E-learning technologies, specifically social networking websites, are effective tools for creating constructive educational environments. Blogs are especially valuable platforms for constructive learning and can be tailored to support a wide range of educational concepts and activities. E- learning System in blended and virtual learning Environment enhances the Cognitive Skills and Creative Thinking for Learners in Higher Education.

Mapping the factors influencing creative teaching

- Practicality and teachers' creative behaviour are significantly related to teachers' behavioural intention to engage in creative teaching.
- Student expectation is significant for urban teachers, while school support is a vital factor for suburban and rural teachers.
- The expectation of colleagues is a significant predictor to teacher efficacy of creative instructional strategies.

The expectation of students is pivotal to teacher efficacy of creative student engagement.

32. Innovative teaching approaches- A guide to a Teacher

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Introduction

The aim of this chapter is to assess the conventional teaching schemes and described the innovative teaching aids available for imparting the knowledge to the students effectively. Basically, Education configured as the method of facilitating the learning of knowledge and values. The objective of education is not limited to literate people but also make them more artistic and knowledgeable to develop themselves in all dimensions of the life. Through this research letter we have examined the various teaching techniques and presented some innovative teaching schemes that can enhance the way of learning in all aspects.

Significance of Education in the society

Education mainly configures the development of people living in the society and it is not only limited to imparting the knowledge but also responsible for human values that drives the life in all the dimensions. In present world, true knowledge and information considered as the significant parameters for the

societal growth and survival. Education simply not considered as tool for the upliftment of the social issues but we should consider education as a mechanism of technological advancement in order to propagate the information which helps to gain the knowledge and learn new things innovatively.

An evaluation of conventional teaching approach

In reference to the conventional teaching methods where teacher configured as the resource, the knowledge contents as the significant information and students as the information or knowledge gainers. For delivering the lecture "Chalk and Duster" preferred which is one of the approaches to describe the subject content in front of the students in a classroom. This approach defines that the teacher has a role of delivering the lecture (similar to instructional method) and forced students to listen carefully in the class. Such kind of teaching most commonly considered as the passive form of teaching and the consequence is that students learns the subject by just memorizing the topics whatever taught by the teacher in the class without any understanding of the concepts.

Innovative teaching approaches

- Use of multimedia devices like digital projector, smart board, PAS all such devices combined together to develop a smart classroom where teachers can give power point presentation, audio-visual study materials to the students for better

learning. This type of teaching comes under the category of problem-based learning where students get involved in some problems related to the particular topic and in this way they gain the knowledge. Overall the usage of multimedia technological devices provides an interactive environment of learning the concepts in innovative manner.

- Mapping of student's mind is also configured as the innovative way to teach the students with the use of some key terminologies and applications of the particular course or subject. This approach helps students to remember the concepts and easy to review the operational mechanism. The basic idea behind this approach is to make up students mind with standard pictures or images, physical objects which they can touch and develop their own creativity as well as thinking in more effective manner. With students mind setup they can clearly understands the concepts and develop the approach of learning to apply the knowledge.
- Discussion based learning is one of the most innovating teaching practice in which students are also come with some prerequisites of the topics and teacher directly start the class by putting problems. In this way discussion begin on the topic and students get interact with each of their classmates to know their thinking ability, also this kind of teaching practice imparts analytical approach to the students while solving a particular problem.
- Story based teaching approach also configured as innovative way to narrate the concepts of a particular topic wherein

different situations can give the idea of problems and with full involvement in the story students can think of the solution in a creative manner. In reference to the fields of engineering and science teacher can discuss the operational mechanism of the production industries which will help the students to understand the application part of the concepts which they are going to learn in the class.

- Online learning process by considering internet as the resource point where students can get the courses from the premium universities across the world some of the online learning platforms such as MITCourseware, eDX, IITBombayX, SpokenTutorial, NPTEL etc. students are able to use all such platforms and gain the knowledge from the subject expertise at any place or any instant of time with their own learning pace.
- With the continuous evolution of technologies information runs over the technology which ultimately changes the way, students learn and gain the knowledge to work in their life. Availability of internet is very common and also smart phones provides full access to the internet all the time due to which students can get information on single click that actually gave them a chance to learn anything and now mostly educational institutes configures the utility of ICT (Information Communication Technology) resources that helps students to get the wide knowledge of the subject at advance level. Further with the use of ICT in education different innovative teaching practices have been presented

that makes learning more effective to the students. The ultimate goal of teaching is to impart the knowledge and learning skills in the students whereas utilization of technological aids for the same can achieve in a more innovative manner.

33. Continuous Feedback Approach for Adaptive and Effective Teaching in Engineering

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According to our ancient scriptures, there are four paradigms of a 'Teacher'. First is adhyayan (learning), second is adhyapan (teaching), third is acharan (behaviour), and fourth is prasaran (communication). Continuous learning by teacher with effective communication in the disciplined environment yields to effective teaching. Communication in class room must be a two-way activity between teacher and students, so that both can adjust with each other. But as we cannot expect the highest sincerity from students, then most of the efforts must come from teacher's side.

New academic session or new semester comes with new challenges for the faculties in engineering colleges. Often it is observed that first few weeks are very volatile as far as student's attendance is concerned. Reason may be many but this absenteeism of student results in the loss of their interest in the subject. This loss of interest may arise from lack of correct perspective about subject or due to lack of understanding about

the fundamentals taught in earlier lectures. If this problem remains unaddressed then it will lead to more absenteeism and consequently poor performance in class tests and end term exams become inevitable. Loss of interest in class may also arise, if the methodology of delivering subject matter by faculty is not in sync with student's level of understanding.

To overcome the above said challenges, conventionally feedback forms are used as instrument of information gathering about the shortfalls and methodology adopted by the faculty during the current semester. Often this feedback session is done at the end of semester. End semester feedback approach has some intrinsic implementation problems, such as the suggestions and improvements can be implemented for the next semester only, so the problems of current student remain unaddressed. On the other hand, new students in next semester may have different attitude and aptitude so may be possible that many of the suggestions become irrelevant for them. Even if same students and faculty get involve in new semester, then also the scenario is quite different because of the nature of subject matter (numerical or theoretical). Due to aforesaid reasons faculties generally try to know from students by asking in the lectures whether they understood or not. But in crowd the real needy voices get subdued.

To improve the feedback mechanism, continuous feedback approach can be adopted. In this approach first feedback must be carried out between 15 to 20 days after the start of new session (at the initial to mid stage of first unit). Second

feedback may be carried out after the completion of first unit. Third feedback can be carried out after first test (comprise of 1to 2 units). Forth feedback may be carried out at the end of the semester. First feedback must be taken in following manner:

a. Students must be instructed to take out a piece of paper, on which there is no need to write their name or anything which they believe can reveal their identity.

b. Then they must be taken into the confidence to write feedback fearlessly.

c. Advise them to write the concepts, topics or anything which bother them, ask for critical comments.

d. Also ask them to write about what they find good in lecture delivery.

After collecting the first feedback and analysing it thoroughly, problems can be addressed in following manner:

a. Due to initial absenteeism students can't catch up in the later classes and this problem become more serious later on. Afterfirst feedback faculty may get to know where the students are facing problem. As it is done about in third week, which is the initial stage of first unit so one lecture can be given to address the specific concepts mentioned by students in feedback. Due to this revision session student can catch up with further subject matter and they can feel some confidence. With this they can better orient themselves towards further readings.

b. With this feedback faculty can analyse the standard and expectations of the students and simultaneously can modify the whole strategy of content delivery to fulfil the same.

Second feedback after the completion of first unit, reflects that whether the improvements done are reaching to the students or not. Successful implementation of suggestions and improvements will definitely lead to confidence building between student and faculty. This will result into a healthy communication between the two and students can express themselves in better way. Third feedback after the first test (constituting one to two units) will reflect the exam preparation and concepts implementation issues. So at this stage a holistic advice and counselling must be given to the students to cope up with examination related issues.

Forth feedback at the end of semester will reflect the reaction of students over the whole journey of learning with the faculty, and the comments as well as complements can be used for the future course of action. It is to be noteworthy that all the feedbacks should be conducted as the first one was done. In contrast to conventional end semester feedback system, continuous feedback approach is practically more effective, as it helps in the improvement at every crucial stage. Student and faculty both can get benefitted the most through this. Continuous adaption by faculty leads to efficient delivery of content. Better communication between students and faculty make the learning a joyful journey for the quest of knowledge.

34. Pratibhasthali: Unique and Unparalled Gurukul in Modern Milieu.

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The ultimate aim of education is an integrated all-round development of an individual. School and Colleges is centering for versatile personality development includes developing a child physically, mentally, socially, and emotionally as well as spiritually which help in socio- national progress, elevation of culture and civilization. During the ancient golden era of Bharat, there had been multiples world class and well renowned educational institutes which are known as Gurukuls functioned to provide strong system of imparting knowledge. Students evolved their inexhaustible latent talent under the guidance of knowledgeable and elite gurus.

Tremendous kindness, blessing and great vision of jain saint 108 Vidyasagar ji maharaj who nourished and flourished the unique and unparallel Gurukuls based educational system known as Pratibhasthali where same Guru-disciple tradition perpetuated with aim of education is not sustenance but the fabrication of Lifemanship.

In these institutes ultimate aim of education is not the means to earn and acquire worldly resources but a pious process of

knowledge transfer. At present in order to attain above mentioned objective highly qualified and celibate sisters provide altruistic service round the clock to uphold the bright future of girls. In future similar approach can be imparted to boys also.

Number of literatures, researcher highlighted history of our country as Bharat has irradiated the whole cosmos by its knowledge. It had multitude of enriched centers of education. Both aesthetic and substantial subjects of study viz Maths, Science, Philosophy, trade, astronomy, dance, music, architecture and sculpture etc were readily available in the education center of this holy land. The sole aim of the learning was attainment of perfect bliss. Thus was the reason that education was not the genitor of conundrum but was the key to it.

Pratibhasthali is adherent of the same pristine gurukul tradition in imparting knowledge of must know subjects together with life availing education. Here we aim to instill the human values in true worth to attain the eternal self ultimately.

Pratibhasthali is built on seven pillars which enable us to develop a sound education planning and form the brightest future of an individual, society and the nation along with the retaining of our culture and moral values. These pillars are as follow:

SOUND BODY: To develop vigorous and passionate personalities with elevated morale that enables them to uphold in every odds of future life.

SOUND SPEECH: To build the expression this is generous, caring, soft and meaningful.

SOUND MIND: To impart love, humanity, faith and wisdom of accountability and develop strong, stubborn, indomitable and blissful mind.

SOUND WEALTH: To attain noble control through defensible and honest means.

SOUND ENVIRONMENT: To enlarge care for animals, eco-friendly outlook and concern for mother earth.

SOUND NATION: To generate alertness of rights and duties of a citizen, imbibe loyalty to make BHARAT wealthy.

SOUND SOUL: To widen celestial prospect, complete knowledge and appropriate conduct.

We are not to teach but to direct conscience - Aacharya Shri Vidyasagarji Maharaj

Pratibhasthali, provides education in three languages to the deviating new generation children from its culture due to modern education. Sanskrit language to understand our ancient culture. Hindi is our mother toughs, the national language implant in them the sensation of being Bhartiya. To connect with external global world of science and technology, English language taught to them. Child-centered tutoring of the school is widening the perspective of the student's talents and teaches them to stay with self-control and to follow live and let live principle given by lord Mahaveer Swami. It is the learning

dealing with the moral values of life, cultural ethics and standards for qualities. We realize that, today, the appearance of the world is altering. Specialized tutoring has become a vital part of life. Morality or Spirituality has just become a part of trends and regarded as adornments of some community. Aim of education should not to be sustenance of life but the fabrication of Lifemanship. Due to co-curricular activities such as art and craft, dance, music, cooking, events and celebration, sports and yoga, love for nature, visit and excursions, blessing from guru etc, students of pratibhasthali get integrated all round development.

35. Role of a Teacher: ICT and its effect on Pedagogy of Teaching and Learning

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The role of education is to empower students with their skills and attitudes that are essential to their success in our knowledge and society future. The educational practitioners are still developing the strategies and modifying their pedagogy as a result of introducing ICT (Information and Communication Technology) in engineering education. Teachers have to overcome the following factors which form barriers to use of ICT like adequate training, realistic time management, and inclusion in supportive communities or practice. The following are the three factors that must be fulfilled by teachers to be driven in direction of using ICT: Effectiveness - Using technology, teachers must believe that they will achieve higher level goals, Disturbance - Technology will not create any disturbance to teachers in achieving higher level goals, Control- Teachers must believe that they have the ability and resources to use ICT effectively. Further characteristics of teaching and learning contained in the model come from the learners themselves and the context of the teaching and learning process. How ICT fits into this model depends upon whether teachers will see ICT as

changing the nature of their subject and the way it is understood, or whether ICT is seen as a tool for teaching another artifact in the classroom.

The teachers have to know the pedagogy required to effectively integrate technology into our regular teaching-learning practice. Because the teachers in this 21st century has to be a facilitator rather than a traditional teacher. Teacher as a facilitator has to understand various features before moving from physical classroom to online classrooms. As a facilitator the teacher has to setup and design a new learning platform for an effective online based teaching- learning. To create a hybrid or blended mode of teaching and learning, the instructor has to identify the learning purposes and the technologies. In addition, the design decisions should involve content, pedagogical, technological, academic, practical, and ethical. The three basic components in teaching-learning are teacher, learner/student, and content. In online platform the teacher becomes facilitator and has to interact with the content like preparing slides, preparing videos, nano videos, assignments, practice problems etc. The learner goes through the content and the instructor-learner and learner-learner interaction takes place. The online based teaching practice improves activity-based learning by setting up this kind of delivery mode. The instructor can even prepare open educational resources and introduce a blended or hybrid mode of effective engineering education. The advantages of this blended mode of learning are, the instructor can integrate activity or problem or project-based learning, improve

collaborative learning by OERs and their delivery. All this is possible by aligning technology into teaching-learning practice and this will be student centric. The various elements that can be included in the ICT based online course are active learning, flipped classroom, preparing online courses using LMS like MOODLE, Web presence of the instructor, peer instruction, creating and using open educational resources etc.

Organisation of Classroom

This is related to physical approaches to teaching and learning by using ICT. These practical details need to be managed to well support the learning and teaching in a controlled learning environment. Effective organization of ICT will ensure that:

- Equality of access for all the abilities
- Appropriate access to ICT resources
- Appropriate learning aids for students
- Access of content and communication among the learners
- Different learning styles of students

Technology and Tools Available for ICT

- Interactive white boards
- PPTs, Word
- Computer, tablets, laptops, digital projectors

- Audio video creation – Camstudio, Screen casting
- Visual presentation
- Learning management systems like MOODLE, MOOCs and CANVAS
- Content management systems
- Learning extension resources like Drupal
- Web presence or learning site by Wordpress
- File sharing by Google Drive, Dropbox, One drive Social media

Challenges

The success of the ICT based teaching and learning depends on several factors. Few are stated below.

- Lack of teaching experience with ICT
- Awareness of the possibilities to transform teaching and learning afforded by the uses of ICT
- Ideas about strategies for planning and integrating ICT tools in teaching of certain subjects
- Understanding of the factors that condition the successful use of ICT in the classroom
- All students and teachers should have some understanding of the potential that ICT has to enhance the processes of teaching and learning

- Learning culture
- Social well being
- Motivation
- Engagement
- Thinking

Conclusions

Positive attitudes to the role of ICT in teaching are crucial in influencing teachers' decisions to use technologies in their teaching. Students also need opportunities to develop beliefs and practical theories about the role of ICT. Programs should be conducted and should contain opportunities to use ICT in practical setting. These opportunities should enable further occasions for reflection on solutions to obstacles by using ICT in teaching and consideration of when it is appropriate to use ICT to support learning. Lack of instrumentality and potentially high professional and personal costs is an issue even where pedagogic use of ICT is strongly congruent with the values of the student and teachers. The managements have to explore on how to capitalize the knowledge and skills that are enhanced with the technology integration in teaching and learning.

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36. Activity Based Learning Practice in Engineering

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In India traditional teaching method was followed by all the institutions and quality education is becoming more important to produce quality engineers. One of the main techniques to provide quality education is Activity Based Learning.

Activity based learning is turning into an inclination for present day student driven, result based instruction framework. These systems have been embraced inside the resources of science qualification. This paper characterizes the application and appropriation of these systems. The paper gives an insight regarding how it utilizes movement-based figuring out how to guarantee that understudies turn out to be progressively mindful of structure and group forms.

In conventional showing strategy, numerous students are found to take wrong notes due to poor comprehension. To maintain a strategic distance from this the customary encouraging technique has been replaced by activity-based learning. Much of the time it is broadly seen that even in grounds enlistment industry is procuring extremely pitiful number of students who could really satisfy their necessities.

Students has to be provided by a real say in their learning We have to deal with what essential training is for, and guarantee that points driving the educational components and are not simply restorative. The principle point of essential instruction is to make youngsters 'optional prepared' is to underestimate students' enormous potential for advancement and picking up amid the essential years. Instruction is about further excitement just as the future, yet institutions ought to likewise address the more extensive condition and need of youngsters and society in the present complex world. Youngsters leaving grade institutions ought to obviously be prepared for what pursues.

To improve learning in the Classroom

1. Assess your children understanding when you present an exercise. Give a developmental evaluation before you encourage a unit to quantify what they think about the point.
2. Activity based learning.
3. Capture student enthusiasm by initiating earlier information. The key element of the Activity Based Learning (ABL) strategy is that it utilizes kid inviting instructive guides to encourage self- learning and enables a child to ponder as indicated by his or her fitness and expertise. ABL fills in as one model of tyke focused, youngster agreeable training, which is the order of the Right to Education (RTE) Act in India.

As indicated by eyewitnesses, the ABL strategy has made an obvious enhancement in youngsters' learning and brain research. Kids figure out how to settle on autonomous choices at a youthful age, from picking their action card for the day, to denoting their very own participation. On the off chance that a youngster is missing one day, he proceeds from where he left not at all like in the old framework where the tyke needed to learn individually what he passed up. Incorporated in the educational programs are exercises to make mindfulness about the earth, sanitation, wellbeing, and nourishment.

The key purposes of ABL are:

- Give understudies the sentiment of significance in the classroom
- Give them little focuses to accomplish in classroom
- Lift up their individual and group aptitudes
- Expanding the reasoning capacity and innovativeness
- Instructor should assume the job of facilitator to finish the given targets
- Working up correspondence aptitude among members

Exercises in every achievement incorporate diversions, drawing, and tunes to show a letter or a word, structure a sentence, do maths and science, or comprehend an idea. Incorporated in the educational programs are exercises to make mindfulness about the earth, sanitation, wellbeing, and

nourishment.

Exercises identified with essential science ought to be made under the three-space appearance containing physical activities, right scientific ideas, and joy.

Each institution ought to be given an open essential arithmetic research facility with adequate space, every fundamental material, and gear for the utilization of movement-based instructing.

Activity based learning in classroom, where the student should feel the ease while studying a concept also the teacher should innovate different practices for different stream of students. Knowledge transfer takes place in a wide manner while activity- based learning takes place in a classroom.

37. Challenges for the Effective Teachings

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During school and college days all we have gone through multiple teachers only few of them are still remember. A teacher who gave us a chance to understand and enjoy a subject. We might have forgotten the lessons, but we'll never forget the teacher.

Teaching isn't just about knowing your topic, it is the learning process, and there are no winners, only the growth of that student within their own minds. Definition of effective teaching is different for every person. In our life only we can remember one teacher who are able to make effective impact in our mind and it's possible because of different and innovative method of teaching skills. This teaching method can't be adopting from the books, it comes only once teachers start thinking like students and update regularly along with experience. I think if teacher are remembered by students after many year and students are able to repeat the learning which is transferred by teacher at that time then that methodology will consider as an effective.

Sometime new ideas can't work to make teaching effective but the solution of general problem of teaching can make

learning process effective. Topics are difficult or easy only effective teaching methodology can differentiate them.

The classroom isn't just about math or science or English, it's about the world beyond the walls. Your lessons today can be passed on for generations. You aren't just teaching your current students, but all of the people they will teach and interact with.

Now a days we are facing problem of commercialisation of education in the society. This public perception of family enjoys when they send their children to these 'Modern temples of education' which have air-conditioned classrooms, buses and infrastructure equivalent to a five-star resort like tennis court, swimming pool etc. but they never bothered about the learning.

In schools' students learn discipline, dedication but as he joined higher education his thinking immediately changes. He feels that now he is independent and coming out from school jail, so my question is that why students feel like that and start task without thinking about the impact in their life.

Effective teaching can be done if teachers can change lives with just the right mix of chalk and challenges, if students get challenge along with learning, he will get actual knowledge. Effective teaching can be done if the thinking process increase. Students must be taught how to think not what to think.

In India only two factor works for students: Motivation and Fear of Failure. In our society parents only guide to children, how to win but never taught what to do, if he loses. Most of the students learn because of fear of failure and get failed. To make

teaching effective student should be free form failure and success. If students are sufficiently motivated and cleared about the final goal then it will really help to students but if student are not self-motived and doing studies because of parent's expectation that affect effective learning. Lack of intellectual liberty and academic freedom is what students miss in this education and this failure of implementing something new curtails their motivation to learn, innovate and update their practices.

Teacher's Professional development and teacher's needs should be well taken. Education sector is a very dynamic industry. A good teacher needs to be constantly updated with the best practices practiced across the world. This means re-evaluating and reflecting one's pedagogical skills by adopting rigorous study, practice and self – improvement. The high performing countries keep professional development and training as the top most priority and they conduct in-house trainings every month in addition to regular classroom observations and feedback by peers and line managers. In general, there is no subject specific training for multi grade situations as most training programmes focus on generic skills. Hence there is a complete mismatch between the problems faced by students inside the classroom and training programmes designed by administrators who have very little idea of challenges of a multi-grade class. For example, if a language student is doing a listening task then she would be questioned by her teacher as to why there is focus on listening and speaking

skills rather than writing skills.

There is multiple option to make teaching effective like audio visual classes, animation, MOOC. These options playing major role in society. NPTEL is one the best transformation in education but these learning will be more effective if we all are able to overcome small challenges.

38. Educating with Innovational Approach

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Advance instructional method is the best approach to upgrade educating and learning execution. Distinctive creative training strategies are presently being used over the globe. Cross breed educating incorporates e - learning notwithstanding the up close and personal instructing. Utilization of innovation and sight and sound is portrayed in subtleties. Utilization of brilliant devices for various errands like educating, planning question papers, evaluation of understudy, input and research procedure is talked about. The use of inventive instructing and learning strategies is basic in the event that we are to propel and cause a soul of learning just as energy with respect to understudies, The job of training is to guarantee that while scholastic staffs do educate, what is instructed ought to likewise be understandable to understudies exuding from socially and semantically differing foundations and that they quickly gotten comfortable with the normal gauges. It is as a rule the case that understudies underachieve in view of the way that they have not gotten a handle on an attention to the dimension of evaluation or what it is that the speaker anticipates from them. Speakers should consequently put forth a concentrated effort to using creative techniques so the understudies' learning procedure is as free-

streaming as could be expected under the circumstances and that the system they embrace is helpful for learning. Inventive instructing and learning systems, for example, short address, recreation, pretending, portfolio improvement and issue based learning (PBL) are helpful in tending to the quick mechanical advances and creating work environments that will be required within a reasonable time-frame.

Instructing with innovation connects with understudies with various types of improvements include in movement based learning. Innovation makes material all the more intriguing. It makes understudies and instructors more media proficient. Innovation is a way to legitimize the finish of structure results and has turned into a consistent expansion of the educational modules in the classroom. Innovative Pedagogical Content Knowledge catches the characteristics of this new mixture teacher who must discover his or her place between the convergences of these characteristics. To most successfully show innovation, we should display that innovation inside our controls and classes

Voice Thread is a web administration that enables clients to transfer PowerPoint slides, recordings, photographs, et al. also, add voice portrayal to make an interactive media introduction. Voice Thread is an application that keeps running inside your internet browser and it enables you to change accumulations of media, similar to pictures, recordings, reports, and introductions, into a spot for a discussion. These discussions are not live, yet occur at whatever point it's helpful for the

general population to take part. They are likewise secure, with basic controls that let you direct who can take an interest and what they can do. Instructors use Voice Thread for a wide range of reasons, from expanding and reporting classroom discussions, web-based mentoring, virtual class spaces, proficient improvement preparing, and a thousand things in the middle. The upsides of the voice string are as per the following. It begins understudy driven discourses with better understanding. It is an incredible method to convey extends and request criticism.

Blogging is an open post. Blogging for study sessions is to be rehearsed. Understudies can post contextual investigations in a class blog. Understudies can be approached to post notes on class blog. You can investigate, assess and make the material. Blogging makes you reflect. Instructors normally recall on what has occurred in their classroom, and frequently wonder what they could have improved the situation. Blogging can help with this procedure, empowering instructors to keep a continuous individual record of their activities, choices, however procedures, triumphs and disappointments, and issues they need to manage. Blogging can take shape your reasoning. As we compose, we put a piece of ourselves into the medium. The temporarily of the medium makes blogging helpful for drafting and redrafting. The demonstration of making and recomposing thoughts can empower theoretical musings to end up progressively concrete. Your thoughts are presently on the screen before you; they can be put away, recovered and recreated as your thoughts move toward becoming clearer. You don't need to

distribute on the off chance that you need to keep those considerations private. Spare them and return to them later. The blog can go about as a sort of mirror to demonstrate to you what you are considering. Now and again we don't generally realize what we are thinking until we really record it in a physical configuration.

Prezi is another approach to do the introductions. Prezi is an adaptable application that gives you a chance to make proficient looking introductions. It resembles a free, pared-down adaptation of PowerPoint. Prezi gives you a chance to make introductions that are as easy going or as expert as you need them to be. It enables you to add data to a prezi sort out it intelligently, adorn it with sound and video and after that share it with the general population you have to reach. Prezi makes making an introduction extremely simple. The entire application streams extremely effectively even without taking a gander at the introduction or help; you can plunge into another introduction decently capability. It merits taking a gander at the assistance and online assets to capitalize on it, however notwithstanding taking Prezi in segregation, it's truly usable. Before Prezi, there was PowerPoint, and to a huge degree, that was it. PowerPoint is an extraordinary bit of programming, don't misunderstand us, yet there was certainly space for a change. Prezi feels crisp and simple, yet at the same time creates pleasant looking introductions. It's likewise equipped for managing highlight rich and complex material and making it look great.

It is Open source framework to help structure your session. Moodle is Virtual Learning Environment which gives

staff and understudies access to electronic instructing and learning materials, for example, address notes and connections to valuable sites and exercises, for example, talk gatherings, assemble it is something that gives you a chance to catch your experience, note, site and photographs. Ever note is additionally an extraordinary device for instructors and understudies to compose the majority of their own substance. One can download the application. They can sort out the majority of their notes and gifts in an Ever note journal it is compact, accessible, and indestructible. Regardless of whether you they lose their telephone; their information is sheltered in the Cloud. Notwithstanding systematizing notes for class, it's an extraordinary device to use for research exercises understudies can store pictures, PDFs, and even written by hand notes.

39. Impact of Virtual Reality on Indian Education System

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Introduction

There are three major challenges that the formal education faces in this day and age. Firs is the transmissionist method which is about giving lectures and leads to passive education training in which there is one-way mode of interaction with the students (Capps and Crawford, 2013). The other is authentic learning methods which is about contextualization and requires many factors which are many a times missing from traditional education methods. Lastly, the most important factor which is required in this modern era is creative thinking, logical reasoning and computational literacy which indeed is difficult to teach (Smith and Hu, 2013). The significance of each of these challenges could have been ignored in past, but if this obstacle is not addressed now will hamper the current and future generation of students. In today's day and age where 92% of teens are found online playing games, using social media platforms to interact. Technology mediated experience can help enhance the learning skills for young minds and can be accustomed accordingly to provide an interactive teaching (Wadhera, 2016). Teaching with technology engages students

with various types of activity-based learning and provides them with a hands-on experience. Tools like Augmented Reality and Virtual Reality provides such kind of an experience and can play a unique role in overcoming the above-mentioned challenges (Subramani and Iyappan, 2018).

Virtual Reality as a Concept in Education

According to Pinho, 2004 virtual reality is characterised by three basic ideas: -

- Immersion: the user experiences the real sensation of being inside the virtual world, devices like digital cave and digital helmets help in making this sensation.
- Interaction: the user can work on the virtual objects with the help of devices like virtual gloves or joysticks.
- Involvement: the involvement of the user in the virtual reality is so real that it feels like a part of interface only, the user can navigate the environment in both active and passive way (Pinho, 2004).

Virtual reality simulations allow students to explore different realities and concepts which are impossible to explain through traditional teaching. From exploring Mars to travelling inside the human body and even to exploring small particles like molecules all this can be learned through VR in an immersive environment (Barrili et al, 2012)

How VR can enhance education in India

Experts say that 90% of what humans see the visual content is retained as the integral part of the memory. This is a major part which is being missing from the Indian Education system and Virtual Reality can be the next step to improve the current scenario. The current system is quire mundane and many a times become a boring environment, due to this student's loose interest. Virtual Reality as a tool helps the faculties in to improve the level of engagement of student by providing them with a gaming environment (Martin-Gutierrez et al, 2017). The Indian education system which is more of board and chalk system doesn't promote decision talking and active learning, our education system focuses on formulae method of learning instead of focusing on concepts. However, in case of virtual reality it promotes decision taking while interacting with a virtual environment and creates an autonomous environment which helps students in understanding the complex concepts. It provides a real time experience which enhances student cognitive skills which creates a positive environment amongst students and helps faculties to achieve their objective of imparting knowledge (Martin-Gutierrez et al, 2017). This provides a good evidence that virtual reality must be the present and future of the Indian education system in order to create an interactive learning environment.

Current trend of Virtual Reality in India

Despite having slow adoption of virtual and augmented reality, the compound annual growth rate (CAGR) is expected to be 76% for this industry for upcoming 5years. In the last few years this country has witnessed 170 new VR/AR start up and the industry is estimated to be around $100-120billion by the year 2021. (The Hindu, 2018). In India many schools and institutes have adopted new technologies such as smart boards, smart classrooms and VR to enhance education. Institutions like Rustomjee Academy for Global Career, Thane Maharashtra is one of the few vocational institutes which teaches through virtual reality. Students work on engine models which are built in virtual environment and various other exercise like health and safety and plumbing fixtures which help the student to understand the concepts in detailed and enjoyable manner. India as a country need to adapt and act accordingly to the fact that we have 31million unemployed citizens who are in need of work and this has to with our traditional approach of teaching. Virtual Reality technology can not only enhance the teaching experience but also play a big role in imparting skills which indeed is the need of the hour.

Conclusion

A strong reason for embracing virtual reality as a tool for educating young minds is that it assists them in engaging with the subjects as a way in which they prefer. The current Indian

education system needs hands on technical training methodology, authentic experiences and most importantly student engagement. Virtual Reality can not only provide this but can also provide world class exposure to the students which is not accessible in current scenario (Dalgarno and Lee, 2010). However, a point which should be noted that virtual reality must not be replaced with real world education but should be used as to create experiences to create better conceptualization for students. To conclude VR is a medium where the limit are still being explored and the possibilities of how education can be delivered can reach to any limits with its foundation. With sound method of teaching and practise and innovations, virtual reality can be a gateway for educators to enter new era of experience and teaching.

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40. Innovative teaching practices need of the hour

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We all know that education plays significant role in present world and over the decades the involvement of technological aids in the teaching increased that geared up our education system towards evaluating the skills of the students along with the knowledge. Moreover, teaching a subject and learning a subject always goes together by just sharing the subjective knowledge with the students at a particular time depending on the utility of technological tools. Presently teaching requires more innovative practices which can hold students in the class to learn the concepts in a different manner. The days are gone when a lecturer or teacher used to teach with one- way communication mode or instruction-based teaching where students need to listen all the times. Now the time has come when students enter into the class with a greater number of questions related to the particular topic and teacher has to answer all such questions in a more effective manner.

The time is high for both teachers as well as students for a transform that can be considered as the challenge as teachers are consistently looking for effective methods to keep students busy in their assignments at the time of teaching in the class. Innovation in the teaching practice is the need of the hour for a

teacher as our students wants to recognize globally as a leader with higher values, knowledgeable and critical thinkers. Education is always configured as the dominant instrument for societal change and transformation for which innovative practices in the teaching are required to improve the quality of our education system. In reference to this MHRD started NMEICT (National Mission of Education through Information Communication Technology) a unit that promotes various platforms to provide innovative teaching for the students to learn and gain the knowledge from highly qualified teachers with the use of advance technological aids.

Particularly any method of teaching which follows the purpose of learning can be considered as the innovative teaching practices. Some of the possible innovative teaching practices discussed here as-

1. Group based learning in which several group of students can form in the class and specific tasks assign to them wherein they have to work in a team and proposed the solution in given time. This type of teaching practice comes under the approach of PBL (Problem Based Learning) that helps students to think and analyze the problem in all aspects.
2. Teacher needs to create the interest of the students in particular subject by just discussing the significance of the topic or subject and why they have to study it. If some gets interest in the subject then student can directly go through the various materials available in the market and also refer

different textbooks to learn the concepts innovatively. Teacher needs to motivate the students while teaching in the class due to which student starts thinking differently and asks the questions in the class, in this way it will leads to the interactive learning environment.

3. In order to improve the effectiveness of teaching and learning the teacher needs to be innovative. The teacher should adopt the following practices-

   a. Different students should be given different assignment for example- for brilliant students the assignment should be more difficult as compare to average student.
   b. The teacher should make every student to sit in the front row and should pay more attention to them. Also, teacher should teacher should monitor the improvement in their performance regularly.
   c. The teacher should make the student to write at least one write up on the recent advancements in the field of subject which is being taught. While teaching a particular topic the teacher should give examples of research advancements in the subject.
   d. The evaluation methodology of the teacher should actually contribute the knowledge enhancement of the student. Teacher should discuss on the assessment tests and review the test papers of each student that can help them to understand the problems encountered while studying the subjects.

With all these points teacher can improve the learning process for the students and also teacher gives right direction to the students for achieving the success in their life. Finally, innovative teaching practice changes the way of learning the concepts not only for the students but also for the teachers as they have to impart the knowledge.

41. Active Teaching- Learning Practice

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1. Creativity in teaching method

Tools to stimulate creative thinking leading to innovations like playful games or forms of visual exercises that will excite young minds and capture their interest. It is a time-tested aspect in order to identify and encourage each and every young student's creative abilities, contributions and freedom to explore. Bring aspects of creativity into all difficult subjects like Physics/Maths/Chemistry/ History through graphical representation of complex equations with the help of smart-boards will provide ways to develop their creative ideas and better understanding.

2. Use of Audio & Video Tools

Incorporate audio-visual materials to supplement textbooks during your sessions help to improve imagination thrive and better understanding. These can be models, filmstrips, movies, pictures, infographics or other mind mapping and brain mapping tools. These not only develop their ability to listen but will also help students to understand the concepts in an efficient

manner. Conducting live online discussion or playback recording of public lectures for better understanding.

3. Learning through "Real-Time examples"

Providing Real-world examples in lecture will make teaching moments more interesting and develop classroom learning. Demonstrations and relating concepts through real-lifetime situations will improve better understanding and easy learning. It will spark their interest and get the children excited and involved.

4. Brainstorming

These sessions are a great way to get the creative juices flowing among students. Students get multiple ideas for a problem as multiple brains focusing on one single idea, which ensures numerous ideas and will also involve everyone into the discussion. These sessions will be a great platform for students to voice their thoughts without having to worry about right or wrong, which also encourage students to get rid of stage fears.

5. Going beyond the classroom learning

Organize field trips which are relevant to the lessons or taking students for a walk outside of the classroom make them to learn more than classroom teaching. Some lessons are best learnt, when they are taught outside of the classroom. Without

taking much effort students will be excited, feel fresh to learn and remember what has been taught. Education should make children aware of the world and themselves, widen their perspective, and make them seek the truth. Children gain more knowledge when they see and experience history in museums than being taught the same in the class. The various innovations and the creative endeavors of the teachers are making classrooms zones of great activity and intellectual rigour.

6. Role Playing

Role-play is a technique that allows students to explore realistic situations by interacting with other people in a managed way in order to develop experience and trial different strategies in a supported environment. The role-playing approach will make students for better understanding especially while teaching literature, History, everyday task or current events. It is a best way to make students step out from their comfort zone and develop interpersonal skills. Role playing is more effective for students of all age.

7. Storyboard Teaching

Storyboarding is a great way to teach any subject which requires step-by-step memorization or visualization highly-conceptual ideas especially History teachers can use storyboard to recreate events in the form of stories, it would never be forgotten. Such activities are visually registered and even

complex ideas were easily taught among students. Storyboards can also be shown among students and make them to tell stories using their imagination which in turn improve their way of communication and creative skills.

8. Cooperative Learning Environment

Creating a cooperative learning environment has both a positive social and educational impact on each participating student. Successful learning environments also require that learning objectives be relevant to your students and their lives outside of the classroom. Without the ability to explore how information applies to daily life, your students are less likely to engage in their lessons and commit that information to memory. A classroom environment should be well-decorated, fun filled and engaging students to think and learn better. A creative environment will support them explore and encourage to learn subject.

9. Broad mind attitude

An open-minded or broad-minded attitude can help the students in innovating new teaching methods. Evaluate our self and make sure that you try out new innovative ideas in the classroom.

10. Passion towards teaching

Teachers with passion inspire students. Students get interested and even excited about what they are learning if they are inspired by our teaching which could even make them learn more. If teachers are interested in what they are teach then they could things more interesting for their students. It just requires a little more work, a little more imagination, and maybe even a little acting ability.

11. Team effort

Team or group work in a classroom teaches students the fundamental skills associated with working as a collective unit toward a common goal. Collaborative effort is always immense and improves quality think. Spending some quality time with your colleagues and sharing experiences will improve quality teaching. We can also share our views on improving teaching methods which helps us to come up with interesting ideas in innovative teaching. This also helps in improving our working skills.

12. Peer teaching

Peer learning is a two-way process whereby students learn from each other by sharing ideas, knowledge and experience. Peer learning is still a fairly new concept within a school or tutoring setting, but there are many benefits to this way of learning, as students can accelerate their learning by

discussing their ideas with other students and taking part in peer to peer activities. Student engagement can be vastly improved as students become active learners rather than passive.

42. Delivery and Evaluation methods for Effective Teaching

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Indian Teaching methodologies are purely traditional and good teachers are born and not made. A good researcher will automatically be a good teacher. There is no doubt that teaching in the class room is very important to students, parents, alumni, accreditation boards but the need of the hour is to revisit the methodologies used to teach.

The ultimate result of learning is to gain knowledge and be able to inculcate in the lives of students. A teacher is the centre of attraction in a classroom. A child when it starts schooling believes its teacher more than anybody in the world. A teacher needs to be open enough to understand the minds and needs of the students and mentor them. So the challenge for the teacher is to analyse the mind- set of the students, understand the pace of learning of the students and use innovative methods to help them learn. Most importantly a teacher has to be approachable to the students.

The biggest challenge for any teacher is capturing each student's attention, and conveying ideas effectively enough to

create a lasting impression.as a teacher, to tackle this challenge effectively; you should implement innovative ideas that make the classroom experience much more lovable for your students. Teachers Role Teachers must use various types of Modern teaching aids to connect with students. Now days, we can find class rooms without teachers and just students sitting in class room and a teacher is teaching through online video streaming from some other place. These things are done by the satellite and communication to students is made possible to train the concepts and clarify their doubts. Modern teaching aids incorporate audio-visual techniques like speakers, screens that influence and create the interest and memory of students. Utilizing Modern teaching aids successfully will create good educated students as it states to the best platform for learning and teaching. Teachers are using multimedia content which provides more information and creates interest in the students. The teacher has to be sure to identify the main points of the contents so that children can absorb the knowledge. A multimedia and flash content gives the student a better learning and new experience as they can watch the actual phenomena and understand the process and subjects well.

Modern education has been flaunted all round the world, which is useful and easy for teachers but not for students. Few days back, I was browsing through the internet for some educational details. I was amazed to see a photograph where a school is run with modern teaching methods like LCD in a class room. It was showcasing that there is a great deal of adoption

towards technology by using instructive aids by modern day teachers to educate children. Actually, it was a kind in school, where the children were of age 3-5 years sitting in their seats and a teacher was teaching and guiding them through a LCD projector. I'm not sure how in a dimly-lit classroom, which is lime light so that the screen is visible to everyone. But the question is how sustainable are these methods for the delicate eyes of small children.

The schools and colleges should be very cautious while choosing the delivery and evaluation methods for the children. I have listed a few below:

- Black Board White Chalk.
- PPT
- Flip Class
- Blended Class
- Partial Delivery (Industry Person)
- Workshops/ Conferences/Invited talk/ Invited talk/ Partial delivery.
- Supporting Delivery Methods for Inclusive Teaching (Activities)
- Tutorial.
- Co-Operative Learning.
- Recorded video of lecturers (Students can learn their own place).

- Inclusive Teaching
- Remedial Classes. (For weak students). MOOCS/MOODLE –Massive online open courses. (ICT)
- Evaluation Methods (To evaluate Course Outcome attainments)
- Poster Presentation for Case Studies/ Mini-project.
- Project Exhibition for Mini Project/ Project.
- Report Writing and Seminars for Blended Classes or Flip classes.
- Feedback Analysis for Blended Classes/ Co-Operative Learning.
- Quiz For PPT/Flip Class/Blended Class/Black Board White Chalk
- Debugging Contests/Competition for enhancing program skills and circuit analyze/design skills.

So here are some innovative ideas that will help you reinvent your teaching methods and make your classes more interesting.

Creative Teaching:

- Take the help of tools to stimulate creativity. Include playful games or forms of visual exercises that will excite young minds and capture their interest.
- This is a time-tested method to identify every young student's creative abilities and encourage creative

contributions.

- Bring aspects of creativity into all your subjects, be it be mathematics, science, or history. Think of ways to develop their creative ideas.
- Encourage different ideas; give them the freedom to explore

Audio & Video Tools

- Incorporate audio-visual materials to supplement textbooks during your sessions. These can be models, filmstrips, movies, pictures, info graphics or other mind mapping and brain mapping tools.
- Such tools will help their imagination thrive and grow.
- These methods will not only develop their ability to listen but will also help them understand the concepts better.
- For example, you can get some oral history materials, conduct live online discussions or playback recordings of public lectures

Real-World Learning

- Infusing real-world experiences into your instructions will make teaching moments fresh, and enrich classroom learning.

- Relating and demonstrating through real-life situations will make the material easy to understand and easy to learn. It will spark their interest and get the children excited and involved.
- Though using multimedia content is helpful, it has its own limitation in influencing the minds of students. Listening, reading, watching can help the students to retain information only to a certain level, whereas if the students involve themselves in learning, they would be able to grasp more information and retain the same for a longer time.
- Build teams and encourage co-learning among the students. Sometimes students can understand the prospects of their friends and help them in understanding the concepts.

Brainstorm

- Make time for brainstorming sessions in your classrooms. These sessions are a great way to get the creative juices flowing.
- When you have multiple brains focusing on one single idea, you are sure to get numerous ideas and will also involve everyone into the discussion
- These sessions will be a great platform for students to voice their thoughts without having to worry about right or wrong.

- Set some ground rules before you start. You can go for simple brainstorming or group brainstorming or paired brainstorming

Classes outside the Classroom

- Some lessons are best learnt, when they are taught outside of the classroom. Organize field trips that are relevant to the lessons or just simply take students for a walk outside of the classroom.
- Students will find this fresh and exciting. Without taking much effort, they will learn and remember what you teach them.

Role Play

- Teaching through role-playing is a great way to make children step out of their comfort zone and develop their interpersonal skills. This method comes in handy, especially when you are teaching literature, history or current events. The role playing approach will help a student understand how the academic material will be relevant to his everyday tasks
- Role playing is most effective for students of almost any age group. You just need to customize depending on the age group. You can even use this method for teaching pre-schoolers. Just make sure you keep it simple enough to

capture their limited attention span

Stimulating Classroom Environment

- A classroom environment that is well-decorated, fun, and engaging will help stimulate a student's mind and will help think and learn better.
- Such a creative and stimulating environment will help them explore and will encourage them to learn about the subject.
- Children, especially young ones cannot be expected to sit all day and learn. An environment that positively impacts the children is beneficial for you as well.

Welcome New Ideas

- An open-minded attitude can help you in innovating new teaching methods. Though you might claim to be open-minded, its human nature to resist change. Evaluate yourself and ensure you try out new ideas in the classroom.

Work Together as a Team

- As everyone knows, the end result of the collaborative effort is always immense.
- Think about spending some quality time with your colleagues. Ask them to share their views on improving

teaching methods, you can see many of them come up with interesting strategies.

- So, collaborate and introduce innovative teaching methods.

Love What You Do

- You can give your best only if you truly love what you do.
- When you are not stressed, you will be more creative and inspired.
- Loving your work keeps you relaxed and gives you room to experiment with new ideas.

43. Innovative Techniques of Teaching in Business and Management Education

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Cut-throat competition is the characteristic feature of present-day business world and organizations have wholeheartedly accepted the fact that in order to survive, they have to rely on the efficient workforce. It is an only human resource that can help an organization to face stiff competition and survive successfully. Employees who are highly knowledgeable, skilled, talented and committed are the best resources for any organization. People holding the key positions as well as the lower level positions need to be efficient enough to face turbulent business conditions and to undergo reorganizations. This calls for reorganizations in the education system as well because educational institutions are the places where the overall development of an individual takes place. These institutions are meant for providing knowledge and developing skills among the individuals. But gone are the days

when a typical one-way lecture method was the only way of teaching the students. This age-old practice can no longer be effective in meeting the objectives of educational institutions. Talking precisely about those institutions where business and management education is imparted, this one-way lecture method has become out-dated. Management education is an applied subject which aims to develop such persons who are ready to take various managerial positions and make application of this knowledge to real-life business situations. Furthermore, the immediacy of decision-making and the dominance of empirically derived concepts make management seemingly well-suited to more applied methods of teaching. Moreover, there is a sufficient variety of teaching methods used by academicians within the discipline to investigate which approaches have delivered significant benefits for the understanding and practice of management like group exercises, experiential teaching methods, business simulations, role-plays, live cases, and virtual learning environments (Jones et al, 2012).

Chopra (2018) stated that the relationship between higher teaching skills and course experiences of students demonstrates the effectiveness of applied learning. Similarly, Filak and Sheldon (2008) observed that self-determined student drive along with teacher autonomy delivers greater satisfaction to students, which leads to widespread learning, better course grades, and higher teacher- course evaluations. Teaching business and management courses effectively requires learning self- sufficiency wherein students can develop a logical path of

problem-solving through preferred self - learning methods. This may lead to the learning insight to 'think global' for students and 'teach local' approach for professors familiarizing students to deal with local management situations (Rothwell, 2008). It, therefore, calls for the adoption of more and more innovative techniques to teaching and some of them are discussed below:

Mind map Approach: - Mind mapping can be understood as a graphical method of organizing information visually. Mind maps focus mainly on one word or concept. Here, the main concept is drawn as an image in the centre of a blank page to which other relevant information is added by way of words or images. Hence, mind maps are based on hierarchies and tree structures denoting relationships with a central concept. Mind maps are considered a useful technique in various educational and business situations. Brainstorming which is also similar to mind mapping is also found effective in various business situations.

Z to AApproach: -This approach begins with explaining the application part of a particular concept, so as to raise interest among the students regarding the concept itself. In other words, here a particular concept is explained in a practical sense first and then its theoretical meaning is explained to the students. For example, in order to make students understand the concept of workplace stress, they are first told about the impact of stress on employee performance as well as on the organizational performance, then after the term stress is explained. This way they will be able to understand things better. Hence, this approach aims to create a long-lasting memory of the concept.

Case-based approach: -This approach was originally developed by Christopher C. Langdell, a Harvard Law Professor. Under this method, a case or written problem is presented to students in the class. The teacher asks them to read the case thoroughly and analyze it from all aspects. They are asked to provide solutions to the given problem which is more or less related to the concepts already taught by the teacher in earlier classes. After analyzing the case, students provide solutions which are discussed in the class. The teacher here plays the most important role by way of helping them reach a common solution. Hence, it is a means of simulating real-life experience in the classroom.

Flipped classroom: - Under this approach of teaching, the focus is on learning by students themselves. In other words, the students have the responsibility for learning while as the teacher facilitates their learning process (Aslan &Reigeluth, 2015). Here the students are asked to prepare out of class by way of doing homework or watching videos on an assigned topic. While class time is used for interactive learning among the students. The teacher facilitates learning, guides and provides individual help whenever required.

Roleplaying approach: -Under this approach, the students are allowed to practice what they have learned with the aim of enhancing their understanding of different concepts. Here, an artificial situation is constructed in the classroom and two or more students are given different roles to play. The role players are given a description of the situation and the roles they have to

play. After giving sufficient time to prepare themselves, the students are asked to act before the class. This way the students are able to put to practice what they have learned from lectures, textbooks etc.

Humorous Teaching Approach: -This approach is based on the lighter side of life which in addition to fostering cordial relations between teachers and students, aims to provide welcome relief while trying to follow a lecture on a complex subject. It is a proven fact both by research and experience that making use of humor in teaching is a very effective tool for both the teacher and student. Humor strengthens the inter-personal relationship, eases stress, makes a course more interesting and if relevant to the subject, may even enhance recall of the material.

Conclusions:

While the above stated innovative approaches to teaching seem to be interesting, these have proved worth in the field of education simultaneously. Various studies have found these innovative approaches as an effective method for understanding new and complex concepts. For example, Cunningham (2005) conducted a study in which it was found that 80% of the science students considered mind mapping method as helpful in understanding complex concepts and ideas. Holland et al (2004) also found positive effects of mind mapping technique on the students of art and design. Similarly, many studies have found Flipped classroom and role play approaches to teaching very

effective in management education. As for instance, O'Flaherty & Phillips (2015) found the approach contributes to the effectiveness of student learning. Similarly, Sajid et al (2016) found the approach replaced the traditional lectures with active student-learning that provided well-balanced critical thinking, and improved information retention. The present study, therefore, emphasizes the importance of these innovative approaches to management education because these approaches can prove effective in developing managerial skills among the management students like interpersonal skills, decision- making skills, conflict resolution skills, leadership skills, and intellectual skills. The sooner these techniques are utilized in business and management education, the sooner the better managers will be evolved.

44. Need a teacher who really knows Mathematics

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In India it is a common practice to teach our students what is written in the prescribed books with our own method of explaining from the knowledge we have on the subject matter. Most of us take the class the same way our teachers taught to us. Most of us don't know the basic concepts in the subjects like mathematics and science which are the foundation stones for Engineering subjects. Except basic knowledge we never used any mathematical equations anywhere like complex variables, matrices etc. We can't understand many equations when referring journal papers, we don't know the basics how to express an idea in terms of mathematical equations. It should be taught from school days. For this we need real mathematics teaching faculties who know the art of expressing in mathematical equations. In India if this change occurs, we will become a Super Power country very soon. On the other hand, teaching subjects like social sciences, law, etc just understanding the subjects is required with some art of teaching skills. India lacks in the field of research in Engineering because we don't know how to apply mathematics but we are experts in solving any problem at the same time most of us don't know how to

write a problem in terms of equations and find solutions. When a student is asked to solve a mathematical equation, he hates the subject in general. There are many students interested in maths but in general mathematics becomes a hard subject most of the students feel due to lack of interest. It is because the way it is being taught.

We understood mathematics only upto primary standards. After that we go to tuition classes for scoring marks to get a seat in a reputed College. There also for example in an engineering college for four or five semesters maths teacher takes classes to complete the syllabus. We were never taught the application of mathematics in our engineering subjects except algebra some time matrices for electrical stream trigonometry for mechanical stream.

We need a sea change the way mathematics is being taught to our children otherwise we can't understand many basics in science again we have to depend on foreign countries or through reverse engineering techniques.

45. Innovative Techniques in Teaching- Learning Process

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In recent times, it is observed that the traditional way of teaching has been changed and new innovative methodology has been emerged. In olden days only chalk and board are available. But recent days smart board replaces the olden traditional board. The knowledge has been shared only from books. So to gain more knowledge, experts from the area are called to give a guest lecture. To gain depth knowledge a platform is needed to share the views of different experts. For that Faculty Development Program was initiated and it gives a wide scope for gaining the knowledge.

The importance of faculty development programme in emerging technology, to adapt for the growing responsibilities of faculty members are to be carried out more rigorously. FDPs needed to expand their focus, consider different training methods and formats, and encourage new partnerships and collaborations. Innovative teaching methodology like, Poster design, Lab based learning, Project based design, web designing, Quiz, Activity based learning, Question paper setting by the

students, webinars, role play, Seminars, Mini projects, etc. will help the students to innovate their ideas.

The faculties must support the learning of those students with diverse learning needs, and develop curricula and teaching strategies appropriate for a wide range of learning environments

The opportunities and challenges of technology: Technologies offer many opportunities to enhance learning processes with information, simulations, and engaging learning activities. The faculty members must have the knowledge and skills to take advantage of these advances in their teaching and curriculum planning.

Focuses on improving the degree to which, teachers promote a culture of rich interactivity and facilitate thoughtful, purposeful student engagement. To improve the depth of engagement, teachers must make content and activities purposeful and making the session more interactive my giving real time applications.

Highly effective teachers are part archaeologist, part homebuilder, and part astronaut. As archaeologists, teachers unearth the hidden greatness in all of their students; as homebuilders, they develop self-confidence and perseverance in their students and create a foundation that encourages students to tackle what previously seemed insurmountable; and as astronauts, they guide journeys to places otherwise thought impossible.

The main qualities of an effective teacher are,

1. To be permanently and critically reflective on the teacher's own teaching
2. Ability to plan and deliver teaching informed by educational research
3. Creativity, teach to know her/his students, taking in consideration all limitations enforced by administrative, institutional or other reasons.

The main threats to become a valuable teacher are:

1. Being unreflective, blindly believing and applying educational methods/tips
2. Believing and applying the academic traditions in teaching
3. Not exploring approaches to teaching further to one's previous experience.

Best lecture includes all detailed needed information, oppositely it should include the main frame. Successful lecturer should insist on humour and emotions and include jokes or interesting related stories in his lecture which will never be forgotten by the students and will help them to remember the information given.

Additionally, the students will stay "alert" all through such lecture and reflective and this is what the lecturer needs to

receive during his lecture and build on. Good teachers are effective classroom managers and communicators who can adapt to a variety of learning styles and effectively instruct a large percentage of the class. Improvement of teaching in the classroom can be obtained by putting together a plan of action and following it through. Teachers who make the extra effort to improve their teaching can make a significant impact on the lives of students.

Obtain student feedback frequently. Make the students to participate in all of the activity. Understand the student's level and categorize them Make the action plan for the week, execute it and access them whether it is going in a right sense, or fine tune it according to the students.

46. Modern teaching Practices in order to improve the Teaching process

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In ancient days teacher selected and separate a group of people who are excellent in some skills he is mostly getting success because at the time of initial stage only teachers got clarity what to teach because of already separated based on the student interest but nowadays we are not having that chance for this we have to a chance to make students better.

Mostly we depend on the chalk and board to explain the topic but we need to improve the teaching and learning process by doing modern teaching methods by considering blooms taxonomy levels

We should go for outcome-based education by considering all these methods

This was implemented in ancient days perfectly.

47. Three Golden Words of Effective Teaching Practices - What, Why and How

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Parents are the first and best teacher for a child. After the parents the teachers plays a keen role for the complete development of a child personally and professionally. The lessons, acts and knowledge of a teacher are instrumental for the success of a student. A child learns everything by following the parents because of the curiosity. That learning is purely by the observations. So a content or topic which will be prepared by the teacher must have experiments, observations and visual explanation to justify the theories and laws. The various teaching techniques should be employed from the childhood by the mother and teachers at the early stages of the schooling. Learning from playing, graphical, pictorial, self-made content, homework and assessment following the guidance of the teachers and books will be very useful to develop the interest of learning to think and put questions. An interest switched to the question so quickly in three golden words or ways i.e. what, why and how. One interest solves the question in those three ways by developing a new and innovative thought in the mind of a student. Curiosity and passion to learn a lesson or content can be generated by the teacher by developing the content using those

three golden words. Generally, a content or topic is continuously explained by the help of simplified theory, art and math by a teacher to the students with the help of a piece of chalk and board in a confined area called class room. Sometimes this kind of teaching makes students idle and inactive. So the class room teaching must be more interactive, audio and visual presentations in one and three dimensions, animated, graphical representation, beyond and backgrounds of a particular content or topic. The most significant aspect is the environment of the classroom having smart teaching tools, equipment's, must be well decorated, properly lighted and funny to engage the young and critical minds to be happy, expectant and inspired. Before giving a particular lecture on a topic the teacher must explain the objectives, applications, sciences and stories involved in that particular topic. Irrespective to subjects the teaching should be more creative in the form of visual exercises to electrify the students mind and bring out their attentions. Different audio and video tools can be used to develop the ability to notice, listen and realize the concepts. The presentation on a topic by the teacher can be an oral or chart or visual exercises or literature type of explanations. Inviting Team work on a particular project or title must be welcome by a teacher. Role play during a lecture will stimulate the students to be more active by bringing them out from their comfort zones which will be more helpful to build up their interpersonal skills. Welcoming new ideas and encouraging the student's hobbies will motivate and rejuvenate young and sharp minds to be more perfect and enthusiastic. Puzzles, games and joining in groups or clubs to share the knowledge beyond

the particular syllabus or content must be encouraged by the teachers to the students. Activity based teaching, debates, essay writing competitions, small projects on different topics, conducting dramas and plays for the historical subject can help students to be more excited and realistic.

This type of practices will help students to be more confident and fearless to write their examinations. Students will feel cared if regularly monitored by the teachers. Small content syllabus, unit tests, surprise test, flexible hour for the clarification of doubts, real time problems and discussions for the mathematical subjects will develop the ability to think and solve different kind of problems. Instructions must not exceptionally mean for the learning of theories and facts. It must be training of the bright and young minds to think more and more. More over outside the class room a small walk around the garden to observe the act of gravitational force, growth of a plant, field trips, plantations and guest lectures will provoke the students to learn, realize and become more lively. A two-minute silence or prayer before the lecture will assist students to concentrate. Finally, kindness and support of the teachers is always inspiring students to become a talented and good human being.

48. Effective Approach to Enhance Teaching & Learning Process

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In the process of teaching and learning, the classroom is the prime cultivator of proper learning and it is the green house that develops creativity and talent. The acts between the students and a teacher determine the quality of a classroom. Efficient teachers knows the correct way of designing their classes and take their students onto a journey of real learning, responding to the doubts of students and imparting them into a situation of interactivity and curiosity such that the students can grasp the lessons to their full potential . For this the teachers should learn the classroom management skills. There is a need to optimize the experience of learning.

The below are the few innovative methods that makes the teaching – learning process to be more effective and fun.

1. Teaching should be Creative:

The teacher must create some visual exercises for the students which can stimulate their minds. This is the method where the teacher can identify the student's critical thinking and their creative abilities. Then the teacher can encourage the students to develop creative ideas and give them the required space for exploring their ideas.

2. Audio & Video materials:

The teacher can incorporate these tools as a supplement to the text book. This method of teaching engages the students in listening properly to their courses and also helps them to understand the concepts effectively.

3. Learning through the Real-World situations:

While teaching teacher can relate the classes to the real-life situations so the students can learn the courses easily. This makes the students engaged and involves them in learning. This method also makes the teaching to be fresh and enhance the quality of classroom teaching.

4. Brainstorming sessions:

In this method the teacher can make their students, voice their ideas on single concept which can involve everyone into the discussion. This is the way to make the students to be creative.

5. Try out new ideas:

The teacher should be open minded during the discussions with the students. This helps the teacher to innovate new teaching practices.

6. Teach the courses like a story:

Learning the courses will be more effective if the teacher introduces the lessons as an interesting story.

7. Read the books on Creativity:

The teacher should read the books on creativity. Also the teacher has to do research on creative techniques and ideas to be a creative teacher.

8. Student Clubs:

During the teaching the teacher might not find the enough time to discuss the interesting topics that either students or teacher are passionate. The method starting student clubs helps the students to share their views and learn from others. Hence the educational institutes in India, should follow the innovative methods in installing educational technology and should encourage the teachers to be creative than before.

49. Methodology of Teaching Engineering Students: Towards Improvisation of Teaching-Learning Process

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Abstract:

The student is well receptive if the teacher covers the syllabus uniformly in a semester. A barchart is useful to get a pictorial view of the extent of syllabus to be covered. The dissemination of knowledge could be improved through visuals and animated figures. The means to improve the quality of teaching and the receptiveness of a student are described in this paper with the help of a course on "electromagnetic fields and waves".

Keywords: assimilation, imparting, dissemination, barchart.

I. Introduction

Dissemination of knowledge requires: (a) clear understanding of content by a teacher first and (b) adopting good presentation skills so that every student of the class understands the subject. The authors observed that the coverage

of syllabus is faster during the final phase when the university examinations are closer. As a result even the bright student is unable to perform better. The issues and the possible remedial actions are described in this paper.

II. Objectives

The paper is aimed at bringing an awareness, primarily, to a teacher right at the beginning of semester on the extent of preparedness and knowledge gaps on various contents of the subject to be taught. The secondary importance of this paper is to provide an advance information to the student for a better preparedness.

III. Organization of Course Content

The course content of a subject on "Electromagnetic fields and waves" is in Fig. 1 in the form of a barchart. The level of preparedness for each section is also shown. At each bar the number of lectures is shown in the form of vertical arrows. The total number of lectures in the present case is 34. These are covered within a timeframe of 16-18 weeks which is typical of a semester. The tests and the internal examination to be conducted are also indicated. The test is of short duration while the examination is in the university format and of a longer duration. The preparedness is given in percentage - 100% indicating the lecture could be delivered within a short time refreshment of the content.

IV. Influence of Tests and Internal Examination

It is common that a student starts his active preparation a few weeks before the final examination. The importance of conducting tests and an internal examination is to: (a) assimilate content taught, (b) ease the pressure/stress and organize better for university examination, (c) churn the content for a better understanding, and (d) feedback to the teacher on students' assimilation and class performance. In Fig. 2 the content accrued, expressed in arbitrary units, over the time is shown. Each lecture is indicated by a small arrow close to the abscissa. The bigger arrow pointing upwards represents the weekly content. All this content is to be assimilated and to be well understood to face the examination. If a test is conducted after a certain number of lectures the student is bound to assimilate the contents better and move further on a better footage. During the last one month more than 40% of the content is covered resulting in crossing the threshold level of receptiveness due to which, even, the active student is unable to cope up with the load.

V. Issues and Remedial Actions

In the present era a wealth of information is available by a simple touch button. A lot of knowledge gaps, both to the teacher and to the student, could be bridged with the information available on net. However, a regular teaching in classes and face-to-face discussions are essential for a better understanding of the subject. Some of the common issues in India in the teaching in

engineering are as following:

a. Improper coverage of syllabus.

b. Long absence of teacher in certain cases.

c. Less attention on tests and internal examinations.

d. Poor archiving of expert lectures and past university question-answers.

e. Teaching limited primarily to achieve good scores.

f. Less interest to the students on other than the job fetching subjects.

g. Lack of training and orientation courses to the teachers.

h. Lack of research facilities.

The role of college/university management is vitally important in addressing and circumventing the above issues. The preparation of barchart may be kept mandatory. The coverage of syllabus by any teacher vis-à-vis the barchart may be monitored and the feedback from the students may be taken.

The lectures by experts, invited from time-to-time, may be videographed and archived. The expert lectures of reputed institutions may also be added to this archival for an immediate access to the teacher.

VI. Summary

A good teaching-learning demands an uniform coverage of the subject material all through the semester to enable a student to exploit his full potential. A barchart enables a teacher to find out his/her preparedness much in advance so that needful efforts could be made to bridge the gaps. The chart is also useful to the student in attending the classes with a prior reading for a better understanding. The graphical representation of time versus 'accrued content' is useful to understand the extent of load a student has to bear in the assimilation to perform better. The intermittent tests and internal examination not only shape the student in time management but also boost the confidence level for the university examination.

50. Enhancing Learning and Teaching Techniques with Hands on Experience

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'Engineering' is the word which acquired from Latin "ingenium", meaning something like a brilliant idea and innovative creations [1]. In modern civilization, engineers put their mind to apply knowledge of physics principles to create practical applications and to comfort human lives. Even though different concepts were elaborated in different books by exceptional authors, one has to confirm that teaching ways of engineering concepts should be well defined. In order to create skilled engineers, effective teaching techniques need to employ to empower the brains of students to create a sustainable future.

According to a poll conducted by the IBM company, 1500 CEO's votes for creativity is the main constituent of leadership and proficient in solving problems [2]. As per Bloom's taxonomy, evaluative and creative minds are the higher level of learning outcomes. However, different educational innovations are needed to improve engineering teaching practices and teaching outcomes. Response to that, Massive Open Online Courses (MOOC) platform created from top IIT colleges of India is currently trending topic in regard to the effective implementation of teaching practices. A number of courses can

be helpful for teaching faculties of India under the Faculty Development Programs (FDP) conducted through the MOOC platform.

In order to evaluate the effective utilization of engineering concepts, examinations need to be taken from a practical point of view. Theoretical exams and its related effects were seen in the increasing rate of the unemployed sector of unskilled engineers.

Implementation of faculties having industrial experience in the practical domain must have to be included in examination organizing committee for the present education industry. Examinations oriented to practical workshops, mini projects, innovative ideas creation, and its implementation are some of the tasks which are possible to include in the exam credits of the Indian education system.

Present industry 4.0 revolution focused on Cyber-physical systems, it is the conversion of normal working approaches to smart working environments. Any smart factory comprises of the following three sectors i.e., smart services, smart machines, and smart production. To acquire skills of those levels, students must expose to industrial working environments at a much higher extent to familiarize with it. In order to achieve such exposure to industrial methods, equipment and techniques along with curriculum activities should be modified according to it with hands-on experience. Curriculum activities can be made in accordance with the strategy followed up by engaging practical examples with group discussions and power point presentations i.e., ensuring active learning throughout theoretical lectures.

Once the theoretical concepts are familiarized with the students, evaluation of students learning and classroom teaching is checked with the proper feedback system. Once the desired results are achieved with theoretical concepts, hands-on experience of an instrument (for mechanical, electrical, civil branches etc) relating to the applicable subject is appreciable or hands-on task on programming in C or C++ for Information Technology field (for IT & computer branch) is essential. During this process of hands-on tasks, proper guidance from respective teachers needs to be given. Useful material like reference books with specific sections, video material to perform practical or manufacturing actions need to be made available for the students. Hands on experience could be progressed with the task of the mini project by providing incentives of credit or point system to students can conclude as a motivational factor to enhance student's involvement in the appointed work. Mini projects must be given to students by providing them with a set of problem statements to find out multiple ways of solutions. Such a technique can enhance their creative problem-solving skills and results should be discussed irrespective of the feasibility of solutions. Failure in getting results will help students create evaluating skills within them and can create a path of enhancing their analyzing skills. With multiple solutions, teachers must discuss every solution with their students. By keeping aside thought of failed solutions, appreciation of work towards students will open up the doors of a higher level of thinking. Solutions from different angles and perspective can create opportunities for active participations in creative problem-

solving strategies. Creative and innovative environment relative to teaching and learning technique will help improve efficiency and effectiveness of skilled students.

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51. ICT: An Indispensable Tool in English Language Teaching and Learning

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"A new age demands a new paradigm"

-Walter McKenzie

The process of teaching-learning has come a long way and evolved into a virtual learning environment. It is the learning culture and learning friendly environment that paved way for the development of such an environment which helped in turn to develop a variety of skills, abilities, competence and problem-solving capacities in an individual. Language is the mirror of human life which delineates the life of human. Language speaks man's personality. It is the cosmic medium like imparting the common information society. In today's world of emerging trends in technology, everything is flexible, especially the teaching of English language. Information and communication technologies (ICT) have become common place entities in all aspects of life. The use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavour in English Language teaching is becoming more and more

important and this importance will continue to grow and develop in the 21st century.

'ICT in Education is important! Information and communication technology (ICT) have quickly become one of the basic building blocks of modern society. Today's age of 21st Century is also the age of information and technology (IT). Every aspects of life are related to science and technology. Huge flow of information is emerging in all fields throughout the world. Now information and technology is popularly using in educational field for making teaching learning process successful and interesting for students and teacher both. In 1998, UNESCO World Education report refers about student and teachers must have sufficient access to improve digital technology and the internet in their classroom, schools, and teacher educational institutions. Teachers must have the knowledge and skills to use new digital tools to help all students achieve high academic standard. According to UNESCO (2002) "ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters".

English and ICT have become essential tools for a number of non-datum and emotions of everyday life. English language has become a global language because of its numerous functions and preferences over several other languages over the globe. English has become the window to the world. English is not only the mother tongue of Britain but also to so many countries like Canada, USA, New Zealand etc .It is also used as second

language in many countries like Nigeria, Ghana etc. English has become a medium for business and interactional purposes among other functions. English is playing a major role in every field such as medicine, engineering, education, art and law, music etc. As the world is changing, there must be changes in language learning. But contemporaneous collide of globalization, the expanse of English and technological development have transformed our learning and teaching English as a Lingua franca in an unprecedented way. In every aspect of human life, Science, Information, Technology are playing a vital role. Even in the field of education the technological developments have started a new page. Traditional methods of teaching are not showing great impact on the learners. Technology has become a tool for making the learners innovative and also became a source for motivating the learners towards learning.

ICT as an Effective Tool in English Classroom

There are some kinds of technologies classified into information and communication technology commonly used in language context, such as:

- Interactive multimedia
- Computer
- Audio devices
- Internet
- Television
- Mobile gadget

- Social interface
- Assisted Language Learning
- EBooks
- Audio Books
- Interactive White Board
- Mobile Apps
- Audio-visual aids
- Overhead projectors/slides
- Tape-recorder/gramophone
- Film projector
- Language laboratory
- Web 2.0 applications

Advantages

The use of ICT has positive effects on foreign language teaching learning.

1. We can get the required information within a fraction of second.
2. Learners become more innovative with the help of e-learning.
3. ICT provides the information to the students which will be useful for them to compete with this competitive

world.

4. English lessons that incorporate multimedia applications can exert powerful motivation and provide bored students with exciting new ways to learn.
5. ICT can make students and teachers to work with current and authentic sources.
6. ICT ameliorates the learner's interaction, verbalization involvement in group collaborative learning.
7. Students can learn independently.

Disadvantages

1. Students get short span of attention because of the ICT in language learning.
2. Online learning cannot offer human interaction.
3. Students may open or log on to the unnecessary websites to play games or to watch movies etc.
4. Intense requirement for self-discipline and self-direction.
5. Good infrastructure and trained man power is required to use the ICT tools in teaching and learning.

Conclusion

In a multilingual, developing nation like India, English Language learning assumes a special place. At this juncture the English language teachers need to make a deliberate effort to

assimilate new strategies, techniques, innovations and nuances of ICT, hone their skills, equip themselves and cater to the needs of the learners and make their learning experience more rewarding. This study has examined the role of information and communication technologies in facilitating teaching and learning of English Language. It harnessed several views of scholars which established the fact that ICTs are indispensible tools that facilitate the teaching and learning of English Language. The paper has pointed out how multimedia technologies can be applied in the teaching of different aspects of English Language. This paper highlighted the importance of present teachers' understanding, not only about how to use ICT but also about the specific knowledge involved in the pedagogical use of ICT.

52. Transforming Management Faculty into Best Performers

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Teaching is an academic process in which students are motivated and influenced on how they think, act and feel. Teaching enhances the level of learning of students and helps them grapple with ideas and information they need to develop for own understanding. A teacher should demonstrate positive attitude and enthusiasm for teaching and learning, be a pedagogical expert, simplify and classify complex concepts that result in proactive insights, stimulate learning in students and encourage active participation among students. Beyond teaching a teacher should act as a mentor, counselor, guide, help students to recognize their own shortcomings and limitations and promote for holistic development of the student. Mentoring helps to fine tune students' performance and help them achieve work life balance. Globally universities are exploring ways to design their curriculum, research agendas etc in order to meet the future needs of students and market. Context and environment for learning and development should be maintained. A teacher should develop a leader who has a better understanding of the world in which they do business and take

ethical decisions for the maximization of stakeholder's value.

Teaching, now a days has become a challenge to teachers. The advent of technology and increased usage of smart phones and other gadgets has made information easily accessible. Easy availability of conceptual material in websites, blogs and YouTube videos is stopping a teacher to grab the attention of students. It is proved already that the traditional way of black board teaching is groundless. Where universities and engineering institutions are striving for outcome-based education, it has become imperative on the part of the teacher to adopt innovative teaching methodologies to make class room more interesting and striking. Students with different backdrop and backgrounds are joining these universities and engineering colleges with lot of expectations. Hence a practical approach is required to be adopted to make the process of teaching more vibrant.

What makes your teaching truly distinctive?

Traditional class room teaching does not offer a chance to practice and experiment but there is an imperative need to fill the gap between theory and practice. Flipped class room technique promotes greater student involvement in the learning process and lays down the foundation of independent learning. In flipped classroom technique faculty will follow up the entire discussion and ensures students participation and active learning. Case study method involves inquiry about a real life situation/ individual/ event applying principles and concepts to

provide optimal solutions. Given a case, students are encouraged to brainstorm till they arrive at best solutions. Role play creates an opportunity for the student to understand and experience actual business situations. Through Role plays students portrays various characters of a business situation which enables them to understand real time business problems. Students should be given an opportunity to organize various management fests, student development programs NSS, NCC related activities which develop their team building, planning, organizing, problem solving, decision making, and communicating skills. Industrial visits help faculty to explain complex qualitative concepts and other industrial applications and practices in an easy manner and also support student understand it in a better way. Collaborative and interacting teaching methods, audio video supplements always give fruitful results. In interactive learning method students and teachers become partners in knowledge acquisition. Experiential learning methods like internships, team projects must be practiced. Stock market games, business puzzles, group discussions, debates on current economic issues are best practices to improve the knowledge horizon of students.

Colleges have to provide the required infrastructure and other paraphernalia in order to assist faculty to adopt innovative teaching methods. Libraries should be well equipped with latest editions of text books and other reference books. R&D cell, incubation centers, Entrepreneurship development cells should be set up in all colleges. Subject rotation should be made

mandatory. No faculty should teach a subject consistently for more than 4 years though it makes a faculty a subject expert but sometimes it decreases faculty's interest on subject. Faculty should be encouraged to take up new subjects that increase their learning and relearning skills. Faculties should be given an opportunity to participate in workshops and related development programs to boost up their morale, update and learn latest best teaching methods that are in practice in the outside world. Apart from feed backs and results colleges and universities should develop proper metrics to measure the impact of certain teaching methods adopted by a faculty. As a faculty's performance in class is linked up with increment, college management should maintain a healthy competitive environment among its employees. No teacher should leave the class without showing an impact in the minds of students. Till then a teacher has to explore the new ways and means to outperform in the class and reach his/ her objective of taking up this noble profession.

53. Passionate towards the Art of Teaching to Sweep the Ignorance Through knowledge

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Now-a-days learners are more curios in external contents which reveal the facts that are intrinsically unfamiliar in their peer circle. They want to expose themselves in a highly knowledgeable manner by conversing about the highness of the unexplored interesting information. This curiosity kindles the learners mind to search for the new things which in turn tuning them towards the source to learn such kind of facts. This is the key for the teachers to keep their students intact with them. Students are usually much interested on useful real time facts to promote their out-world knowledge rather on textual syllabus. Even though the implementation of active learning strategies focuses the students towards the deep understanding of the subject, their interests on exploring facts is still quenching. The recent technologies entirely flipped the older classroom environments and made it as live and creative sessions presenting the concept effectively with relatively short span of time. The person who utilizes the rest of the time in an effective manner becomes the successful inspirational personality for the learners. Instead of discussing the facts, guide them the way to

search for the facts.

"We are no longer in the dispensation of age and experience. We are in the era of knowledge and information. Information leads a true leader and a true leader leads other." — Israel moreAyivor. Never focus towards the same routine of knowledge dispenses. Rather traverse through the relevant wide range of ignorant paths to facilitate the learners to know the pre-requisite to begin their journey towards it. It may be on career guidance, how to create opportunities, decision making skills, motivating by successful real time achievers, empowerment thoughts, how to be tolerant to failures, ways to gain wisdom, humanity, ethics, focused mind, sharing of achiever's biography etc., Stay ahead of the learners with full-fledged resource to satisfy their thirst of knowledge. When sharing knowledge becomes passion, teaching becomes an art. "A true teacher would never tell you what to do. But he would give you the knowledge with which you could decide what would be best for you to do." — Christopher Pike, Sati. Equipping ourselves with new facts everyday will get eventually delivered in the discussion sessions. "The first person you have to resurrect is yourself" — The RZA, The Tao of Wu.

54. Best Practices in Effective Teaching

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Teaching is a noble profession. Teacher builds a good environment. Teacher is mentor for the students and nurture students, become role models. So, teacher should be very effective in teaching. There are certain techniques that will helps to improve teaching methods and will try to make lectures and practicals more interesting. These are as follows.

1. Creativity-: Here, teacher should express their teaching through some visual exercise. For example, while describing any topic,he/she should ask the student to do particular activity.
2. Audio/Video mechanisms-: If you teach particular topic by showing Audio /Videos of it, then it is immediately understandable to students. The concept which teacher tries to explain to students is easily captures by students.
3. Brain storming-: Teachers must make brain storming sessions. Teachers should dictate a particular problem and, on that problem, students have to think deeply. These sessions will be a best platform for students to express their thoughts. e.g. Group Discussions

4. Industrial Visits-: Arrange Industrial Visits at least per year for each class that students should understand what is current requirement in industry, what technologies are coming into market in upcoming years.

5. Expert Talks/Guest Lectures-: Arrange expert talks or guest lectures for career opportunities, recent technologies.

6. FDPs/STTPs-: Technologies are changing rapidly. So, teacher should adapt those technologies. For that purpose, faculty members need to attend Faculty Development Programs (FDPs) or Short Term Training Programs (STTPs).After attending these trainings, faculty members need to arrange sessions for their department faculty members on what they learnt in FDPs/STTPs so that knowledge is exchanged in faculty members.

7. Class Environment-: Classrooms should be attractive, clean. In Practical Labs, there should be charts of information of recent technologies, scientist, practical subjects basics

8. Arrange Surprise Tests-: Teachers should arrange surprise tests at any day so that students will be always well prepared for examination at any time.

9. Demo Lecture by students and for students-: Teacher should give topics to students and ask them to prepare particular topic and they have to explain that topic in front of their class students and subject teacher. After

completion of demo lecture by student, teacher should explain what part particular student need to improve. This is very beneficial for students to increase their stage dating and confidence level.

10. MoU's with Industry-: There should be MoU's with Industry so that expertise from particular industry can guide the students.

11. Emphasis on Practical Knowledge-: Most of the time, it happens that students know theory. But if you ask any practical advantage of this theory or real time example on particular topic, they are not able to speak it. So, teachers should take care that while explaining any topic, they should tell the students that this is the real time example of this topic. Companies want practical knowledge. So, focus of teacher is to develop programming skills or practical knowledge of the students.

12. Sessions by Faculty for faculty-: You can reserve particular day and on that day at least 5 faculty members explain their area of interest so that at least other faculty members especially fresher faculty members get some idea about research topic.

13. Practical Examinations-: Practical incharge must conduct practical exams once in a month so that teacher can have an idea about student's understandings.

14. Research Support-; There should be financial support by institutes for research by faculty members. Every faculty

members must publish one paper in reputed Journals/Conferences like ACM, Springer, IEEE etc. Teacher should try for innovative idea so that it will be beneficial for patent creation.

15. Project Based Learning-: Project based learning should be implemented everywhere. The teacher must guide students while choosing particular topic for the project. The project should be beneficial for society also or project should be Company sponsored so that students will get practical experience with company.

16. Each One Place One-: Each one place one Policy means faculty should be mentor of at least 8-10 students. Faculty should have watch on them. Faculty should give assignments, technical knowledge, give aptitude questions and ask them to complete within a deadline and they should tell them what skills they need to improve by giving marks in particular assignment. This activity should run throughout the academic year. It is beneficial from placement point of view.

17. Guardian Faculty Member (GFM)-: GFMs should be allotted per batch of say 18-20v students. Every GFM should monitor their respective batch students about their absenteeism. GFM should inform respective students' parents daily about their wards attendance. Weekly GFM meeting should be arranged for understanding students' problems or their requirements about guest lectures /Expert Talks.

18. Mock Sessions-: Teacher should arrange Mock /Demo interview Sessions for students. For that purpose, teacher should call Industry persons to conduct interviews. These demo interview process should be like actual interview process like Quantitative aptitude, Group Discussions, Technical Aptitude, HR and Personal Interview so that students will be more serious about that interview.

19. Motivate for Certifications-: Teacher should do online certifications, courses etc. Also, teacher should motivate their students to register for online certifications, courses because this is the need of current industry.

20. Apprentiships-: Students must join company and do apprentiships for say 3-4 months so that he/she should get practical knowledge of recent technologies.

21. Paper Writing-: Faculty should motivate project group members to publish their project paper in reputed Journals/Conferences like ACM, Springer, IEEE etc. For that purpose, all the technical help must be provided by respective project guide.

Above practices should be carefully implemented in institutes so that teaching practice in India will be beneficial for the students.

55. Teaching Strategies to Improve Learning Outcomes

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The primary duty of every teacher is teaching. Secondary responsibility is research. In order to facilitate teachers to improve their academic and research output they should be relieved from any kind of clerical activity. Infrastructure should be put in use to save time and make grant of permissions and approvals online wherever possible. Paper work should be totally removed for routine activities like approval of leave letters, permission letters, etc., all of which can be facilitated online. Although many top institutions in India have such facilities already, there are several others without the same.

Basic student psychology courses can be made mandatory for young teachers. This would enable them to understand students better which would otherwise be possible only with many years of experience. Atleast once in every academic year, faculty should be given a platform to interact with the prospective employers of the students in the relevant subjects. This would keep the academia updated on the requirements and expectations of the industry. Industry academia gap should be bridged so that the employability of the students is maintained high. Annually, a one-week programme like an academic

symposium can be held at a national level involving teachers from different specialisation streams in India like Chemical Engineering, Civil Engineering or Biomedical Engineering where teaching methodologies and subject contents are discussed and developed to meet both the industrial and world requirements. Professors from top universities in the world can also be invited to give their valuable inputs so that in the long run the academic standards in India can match well with the standards of world's top universities.

The old and famous teaching methodology in India was the gurukul system. The knowledge that the students gained residing with their gurus and serving them were far more wholesome than what students gain in today's class room teaching.

The best feature of the Gurukul system was that, apart from gaining knowledge, life skills were honed and moral values were inculcated in students which is almost absent these days. What is heard is easily forgotten; what is seen is better remembered but what is performed or experienced lasts for a lifetime. In the gurukul system, even a complex philosophy would be easily taught using suitable examples, most often drawn from nature. Personality development was also an integral part of the gurukul system. Ancient India was an abode of several great Indian scholars who were pioneers in the field of Mathematics, Science, Medicine, etc., which proves that the system of education then, in India was unparalleled. One reason that can be attributed to such excellence in teaching-learning and

character-building is that the ancient teachers truly practised what they preached. This enabled students to easily grasp complicated ideas and also acquire good traits. In the current scenario of Industry 4.0, ethics is the only USP (Unique Selling Proposition) that human beings have compared to AI Artificial Intelligence) machines. No teaching methodology would be complete if it does not have a moral value addition. Positive qualities like discipline, honesty, etc., should be duly appreciated and negative qualities like lack of punctuality, disobedience, etc., should be corrected and not neglected.

It is important that there is a practical part to any subject where students are exposed to hands-on learning in atleast few important aspects of the subject. Group activities should be encouraged so that teamwork skills are also improved. Mini project for every course can be planned so that there is something that a student experiences in every course he/she takes which remains with him/her forever. Animation, videos and working models are great ways of imprinting students' minds with the content of a course. Such means cater the reach of subject content to a larger number of students including slow and passive learners.

The teaching methodology should be crafted such that every student looks forward to attending classes and starts developing affinity towards the subjects. A specified percentage of assessment should be given for out-of-the-box thinking. The percentage of assessment based on rote learning should be gradually reduced and completely eradicated over a period of

time. Challenging assignments, open-ended questions, mini projects that are socially relevant or has some kind of a research or commercial potential are a few ways of inducing creative thinking in students. The creativity of a teacher along with sound knowledge in the subject that he/she handles, plays a major role in initiating creative thinking in students. Teaching and learning should go beyond semester examinations and internal assessments so that whatever is learnt could be utilised for the betterment of our society and development of our country. Education should make every student more humane, sensitised to environment and to our nation at large. Every teacher should be passionate about teaching. This would motivate a large percentage of students to develop an interest in the subject. Every teacher should develop a good rapport with the students so that no student hesitates to clarify even the silliest of doubts he/she has. In the teaching learning process, the content sent across by the teacher should be received by the students. For the smooth rendition and reception of subject content, there should be no mental blocks for teacher and the students. Only then holistic knowledge-building can take place. The minds of students are like plain canvases, each with a different texture. It is upto the teachers to identify what kind of paints and colours are best suited to each texture in order to paint the same picture. A very high percentage of Indian population is youth. So every Indian teacher should take it upon himself/herself to produce not only the best professionals but also good citizens.

56. Techniques to Improve Teaching Practices in India

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It has been 6 years since I started my teaching profession in a engineering college. I have noticed a considerable difference in the transformation of students who are newly admitted every year. The visualization of students about engineering and college life is very different a decade ago and now.

A decade ago student had a great respect for teachers and they had the patience and discipline to stay in good balance in every class. But today students expect the lectures to be very interesting and innovative. Only innovative and interesting lectures can sustain before them. The major reason for this transformation is because of the evolution and fast development of smartphones. The use of smartphones and abundant internet facility is the strong reason behind this. Researchers and scholars say the future of the country is in the hands of quality educators. Quality education can be achieved not only by teachers and students but also it depends on the cooperation and support from the government. The respective education council must look into the balance and updation of current education scenario. The following teaching practices may be adopted by teachers inorder to achieve effective teaching

a) smart classrooms b) video lectures c) PowerPoint presentation d) kaesthetics e) innovative assignments

There are many methodologies to adopt for effective teaching. I personally prefer atleast the above techniques to be employed in every class.

Apart from teaching methodologies employed the teachers are being paid low in many private institutions. This also creates a negative impact on teachers mind set. I strongly request the respective education council/boards to look into the salary paid to private teachers of schools and colleges.

57. Effective Teaching in India

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Education makes an individual to realize his responsibilities and duties to himself, to his family, to the society and to the Nation and gives him a successful and meaningful life that provides motivation and guidance to the younger generation. The quality of education is mainly dependent on the quality of teachers as they interpret, grasp and deliver knowledge to the students for generations together. Among the various factors that contribute to the quality education and development of the nation, the competency level and personal character of teachers are the most important factors. Thus, effectiveness in education can be attained by the efforts of teachers who are well-qualified, highly competent and dedicated to work.

The first and foremost objective of an educational institution is to provide its students a sound education in preparation for the responsibilities of mature citizenship through the disciplines of a broad, rich and extensive curriculum. A Teacher in an educational institution plays a comprehensive role in shaping the future generations which would destine the future

of our Nation. A conscientious teacher prepares the ground and plants the seeds of knowledge, right from the pre-school days. Later, another school teacher waters these and college teacher makes them grow. Hence, Teaching is a group activity as teachers are involved in various stages of learning until the child matures. A student closely watches the lifestyle and behavior of the teacher. Next to his parents, the student learns quite a lot from the teacher. So, it is imperative that the teacher guards his words, the way in which he dresses, the way in which he moves with his fellow-teachers and handles his wards.

> "A Lamp can light another lamp only if it continues to burn its own flame"

In the context of teaching, it means a teacher has to keep his skill set updated to provide the best of everything to his students. So, the process of effective teaching starts from the teacher's commitment to learn new things. As teachers, we should be ready to be an eternal student so that we might influence students not only to learn what is taught but also to become their own teacher.

We are living in a self-serving, self-centered, and self-obsessed modern-day rush society filled with negativity and constant tearing down of others. There is a general pursuit of position and possession. The biggest problem in the India today is not the scarcity of resources but the scarcity of people who are truly concerned about others and helping others to grow. This is the main cause for all the problems like poverty, environmental pollution, and constant increase in the number of crimes. So, we

the teachers should teach the students not only the technologies also the ethical values that have to be practiced throughout their lives.

In today's Indian education system, the students are imparted with knowledge in various domains nevertheless the holistic development of the student is not considered. The ancient educational system, Gurukul, taught the students self-control, molded their characters, created social awareness, inculcated in them personality, intellectual and spiritual development and enabled them to preserve knowledge, culture and heritage. This paved way for the holistic development of a personality with sound mind. The students had been taught essential aspects for their cultured and disciplined life.

The effective teaching methods are specific to subject and audience. Many teaching methods like visualization, cooperative learning, enquiry-based instruction differentiation, technology in the class room, behavior management and professional management exist. But, not all of these are applicable for learning various subjects. As in India, we have diversified category of students, we need have mapping of these techniques with the nature of students and the course so that knowledge is imparted in an effective way for increasing the efficacy of the process and product. Education is not imparting knowledge alone but transforming the life of people like sculpting a statue. It attains its full shape and form when it is ready to face life. Such a sort of preparation to an individual should be done so that he is useful to the society at large.

Especially, methods like liberalization in Technical subjects, Kindling initiative and creating thinking in the student are more effective in the process of teaching. True liberalization is the leading of a student to broad knowledge of matters outside the narrow range of his technical courses, an insight into matters outside the specialist studies. A great deal may be achieved in this direction by teaching technical subjects in a different way. Instead of giving a formal technical introduction to the technical courses, we may use a better method of providing a historical perspective on the scientists who have contributed to that technology, their life, work and achievements, on the growth and development of the subject and on the impact of it on the life of the society. In addition to adding interest to a pure technical content, this way of teaching makes the students conscious of the human background, gives them a historical awareness and a realization of the wider issues of the concept.

Our teaching should be focused at inculcating in the student initiative, creative thinking and a healthy inquisitiveness bonded with humanity. Inquisitiveness must be tempered by humility and respectful regard for the teacher. It should not degenerate into impudence which is the enemy of the receptivity of mind. There can be no knowledge without humility and ant the interest to learn.

In Industry 4.0, the current industrial revolution, we human try to make everything smart that includes human beings. That will definitely make our work simple but at the cost of losing our health. So, teachers should create awareness about

both the pros and cons of technological advancements and make them to realize the limits between two extremes like technology and healthy life.

58. Training Based Business Scheme to Transform Untrained Engineers to Smart Trained Engineers

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Our educational system mainly focuses on the theoretical aspect of the subject rather than practical part, both the theoretical & practical knowledge enables the students to put them in practice. Doing and demonstrate helps them to apply in their real life. Students who study theoretically cannot cope up with the industry requirement.

In our country, we are still lagging behind the technology by saying "Under developing "country. We have to focus on developed countries how they differ from us. Two major aspect of the difference are 1. Teaching Methodology 2. Producing Intellectual Property Rights. Here, I describe about the copyright titled "Training Based Business Scheme to Transform Untrained Engineers to Smart Trained Engineers" received by Dr.S.Ganeshkumaran, from Puducherry, India.

The main focus of this copyright is to train the engineering students from second year of their particular courses with

practical teaching.

For example: If He / She is a Electrical Engineer, They have to concentrate more on household wiring connection, Home appliances, Mobile, Laptop Services and etc., with the help of professional trainer.

Likewise, every department has to concentrate more on their respective departments.

This in turn creates confidence for them to become an Entrepreneur/ Job Seeker. This core knowledge makes them get placed to place in core companies or they can produce new designs/products to start their start-ups or their organization.

New designs/ products can be submitted in the Intellectual Property Rights office to get Patents, Copyrights and Designs etc., If the students are trained in the institute itself, they can start their own sister organization (Service Centre) for the benefits of students and Indian economic growth.

Some of the benefits get by the students: Self Confidence, Best Core Knowledge, Possibility of getting Intellectual Property Rights, Stat their own business enterprise and etc.,

If we implement this technique in the teaching field, the students can gain more knowledge about the subjects and have more practical knowledge. Later they can apply this technique for their future generation and share it with everyone. If this technique is successful, our country will be a developed one instead of being of a developing one. Every Indian dream is to see their country as a developed country as per the vision of

missile man Dr.A.P.J.Abdul Kalam

59. Teaching Strategy to Vocational Courses in India

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Abstract:

Vocational education and skill development are interrelated to each other to develop productivity by providing employable skill suitable to industry. Vocational education prepares students for jobs, it is essential to have strong vocational education system in the country to provide skill-based education. This paper is to present a strategy of vocational education teaching.

Key Words: Vocational Education, Skill development, Employability, Teaching Techniques.

Introduction

In India, vocational education and training is provided from the Industrial Training Institute, Polytechnics, schools at different levels i.e. secondary, higher secondary and recently at graduation level in few courses. As compare to higher education in all sectors, there is a need of vocational education and training which enhances skill development to increase employability. Government of India established an advisory body 'National

Council for Vocational Training' in 1956, for the implementation of vocational education in India.

The vocational training in India has been successful engineering level at the industrial sector only. To attain certain industry relevant content and to update the conventional syllabi of various courses for different job roles, the National Vocational Education Qualification Framework (NVEQF), which has been launched by All India Council of Technical Education (AICTE) and Ministry of HRD. It brings the vocational education program in ITIs, Polytechnics, colleges and schools that will offer new career of choices in different sectors.

Teaching Methods in vocational education in India

Though the syllabi of courses are updated and AICTE and HRD ministry involved, the teaching methodology for the vocational courses is mostly remains conventional i.e. classroom and lab based learning with industry exposure for the apprenticeship which later tend to encourage industry to keep them on job. But opting vocational courses in India, it not considered first preferred option to engineering as there is few scopes for further progression in job and opportunities in higher education. Now, the trend is changing as, various universities such as University of Mumbai, Chandigarh University adopting vocational education graduation courses in few selected sectors in the beginning. While most of the vocational courses allied with higher secondary school level, with state education boards.

In the vocational education, on job training is proving the most suitable content to improve skill at certain extent. This is done after classroom teaching, lab learning to work on skills and then on job training. In Maharashtra Board of Vocational Education and Examination (MSBVEE), diploma courses, this on job training is in middle of course for two complete months. Since, the study is based with 'limited skill based problem solving', this 'on job training' proves training session. To make this session the duration of training need to be increased, to expose additional skills to solve problems, which will be helpful to both.

Still many companies are not satisfied with the level of skill knowledge and possessed by the vocational students in India, considering lack of industry exposure to solve industry oriented problems. Though, industry absorbs students after completion of course, they provide training to improve skills and making them employable.

The assessment techniques in MSBVEE are conventional, and contains theory exam and practical exam for the skill assessment. Skills are assessed in the practical exams based on conducted practical problems with different knowledge level such as, for passing, understanding for application of the topic to perform task. While for higher grades, skill shall be assessed to evaluation of job and problems to solve problem and analysis of job and problem. This analysis need to be done by the industry professional, who are supervising the skills and aware the advancements in the industry and forthcoming trends as well.

This will improve communication with the industry and will help to work in certain direction to fix the strategy to improve vocational education as per industry needs. This strategy will by large will improve scope of vocational education.

Later at Institution level, or board level, improvement can be done in adoption of flexible continuously updating syllabus. Recruitment of right industry people also makes difference.

To encourage study in vocational education, use of active learning and virtual learning on models will expose students to different visual problems and will improve to skills to solve work based problems with academics will help to improve skill and learning both.

Tutor and Trainer skill qualification requirements

Requirement of industry professional is essential, with good experience and minimum technical qualification for the teaching as per the vocational boards norm. But, the recruitment of industry experts alone cannot be the solution, as it finds difficult to relate mindset of the students and their understanding. Hence, technical teaching and training skill need to be introduced by limited set of skills of using psychological and communication techniques in teaching. Then faculties and trainers shall be introduced with regular updates in the concerned industry. Then faculties will be ready to apply strategies to the teaching and industry related problem solving, which will enhance employability of vocational students. Active

learning and lab learning in the industry (not only visits but regular workshops), will prepare students for job oriented learning. This can be done at local or industry affiliation and Corporate Social Responsibility (CSR) activities of the industrial organizations. Also, Government introduced the portal http://www.apprenticeship.gov.in where candidate can register for apprenticeship and industry will look for the relevant skilled student.

Conclusion

To improve employability of vocational students, education shall be introduced as per the industry requirements and this is to be done by updating syllabus, introducing revised industry-oriented assessments criteria. Chang in conventional and old lab teaching methods. Augmented and virtual reality can be introduced for the teaching, practice along with industry workshop oriented practical in accordance with trade and branch. Vocational educations shall be made relevant to vertical progression by providing changes in syllabi and eligibility modifications for higher education. This will help industry to prepare research after acquisition of skills.

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60. Skilled Teacher-Skilled Learner-Skilled India

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Education system in India with a rich history has been transformed into 3rd largest higher education system in the world. The higher education system in this era is facing some major challenges like scarcity of expert faculty, geographic barriers and high cost of education, etc.

The requirements of the learner has changed and hence the system has to adopt new pedagogies, making learning an

engaging process. The shift is actually from teacher centric to learner centric approach. Considering the global context and technological advancements, several new horizons have been opened for teachers and learners. Keeping abreast of the new pedagogies and technologies has become need of the hour. The role of governance is to empower the teachers by augmenting their traditional teaching skills with modern educational skills through innovative and best practices. Transforming the learners by trained and equipped teachers to ensure sustainable quality of outcome.

The Scottish physicist James C. Maxwell is credited with saying, "There is nothing as practical as a good theory." As experienced teachers, we believe that all teachers operate according to theories. Our practice is driven by our "theories" about what will work for our students. Some of those theories are explicit and are learned in school; some are tacit and are the products of years of experience in schools—as teachers, parents, and students. The theories we briefly explore here have enormous potential both for helping teachers explain why they teach in the ways they do and for disturbing those patterns and prompting teachers to rethink their practice. Although many people want to claim that teachers are born, not made, we believe that good teaching requires teachers to create and use, expand and reject, construct and reconstruct theories of learning and teaching. Those theories are not intuitions, or "common sense" but carefully crafted lessons learned from years of experience and careful inquiry. We also believe that teachers

have more power over their pedagogical choices when they have made their theories explicit and tested them with classroom experience, colleagues' critiques, and knowledge of current research.

Remember that: It is not teaching that causes learning. Attempts by the learner to perform cause learning, dependent upon the quality of feedback and opportunities to use it. (Grant Wiggins, 1993).

India produces 25% of engineers of the world every year. 1.5 million engineers are passed out in India every year but the quality matters. The urgent need of paradigm shift is mandatory for engineering education. We know that education in INDIA can't be changed overnight, but the government should take some major steps to improve our education and research. Most of the educational institutes on India are mediocre Institutes, in which most of the faculty are under trained, under paid and under staffed. Thereby AICTE, MHRD and UGC has to provide autonomy and governance to the institutes to address these challenges.

Government has to equally divide funds for all colleges as same colleges through continuous monitoring of the fund's utilization. I mean all colleges should be equally treated. Faculty has to be recruited not only with degree instead the with the quality of teaching, because the role of a teacher for the current learner centered education is a facilitator or a guide. So, he must be trained through some agency. Corporate India says more than 70% of Indian engineering graduates are unemployable, so there

is a severe need to improve the quality of engineering education in India. It must be attained through OUTCOME based education only. So, the prime responsibility of every teacher is to transform their classrooms into a student centered classrooms. Therefore, Every faculty vision is to nurture the students into a dynamic professionals through proper teaching plan and methodology of teaching by preparing a learner centered platforms through various strategies of teaching. With the traditional teaching its very difficult to handle digital age students. So every faculty has to turn their class room into a learner centered platforms.

The industry requirements of a Good engineer are:

- Having sound knowledge of engineering sciences and technologies
- Ability to solve well defined and ill-defined problems.
- Awareness of customers' needs and market trends.
- Ability to work in a team.
- Ability to document, plan and communicate effectively.
- Willingness and ability to learn on the job.
- Having an interest and awareness in all facets of engineering activities

The faculty of engineering has to address the above mentioned points in their teaching strategies to produce good and marketable engineers.

Higher education need to prepare engineers of the future with skills and know how which they will need to manage rapid change, uncertainty and complexity. The key factor here is tailor engineering solutions to the local social, economic, political, cultural and environmental context and to understand the impact of local action on the wider world. India has the potential to be global technology leader. Indian industry is competing globally in software and even in automobiles, chemicals and engineering equipment. A critical issue for the future of Indian industry is the growth of engineering education in India.

Indian government is pushing Make in India campaign, through the central government of India is inviting manufacturing giants to come to India and setup their manufacturing plants to fulfill the needs of Indian people. As per the statement of Minister of State for Skill Development & Entrepreneurship Govt. of India "We are a youthful nation Our youth is our strength. The world and India need a skilled workforce and we are committed to achieve this mission. In order to meet the government of India mission being an academician I can nurture my students as an effective and responsible citizens by bringing changes in the academics and governance. Dream of our Prime minister "If we have to promote the development of our country then our mission has to be 'skill development' and 'skilled India'. Therefore for the SKILLED INDIA, Skilled learner (Engineer) is required through the nurturing of Skilled, Trained & Passionate Teacher.

61. Techniques to Improve Teaching Practices in India

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I would like to share my experience and suggest few methods to improve teaching practice in India.

According to the present scenario of India students are struggling with new concepts in different engineering branches and facing difficulties with the need to use various techniques to solve problems. Above problems and many more are reducing number of students in engineering colleges drastically. Thus, we need to embark on a study to improve our teaching and students' learning. We need to design teaching strategies to support students' development of engineering knowledge and problem solving as well as communication and team working skills.

First, we will discuss the challenges in engineering education field.

1. Many engineering colleges without appropriate facilities, infrastructure and faculties.
2. Quality of students: Many students join the engineering because they are forced to join or they do not join the branch in which they are interested but they join which they could afford.

3. Traditional and monotonous method of teaching which we adopt because we have been taught like that.
4. There is huge difference between what student learn in college and the needs of different industries.
5. Few students have language issues as they all are from different back ground and they lag in their academics not because of cognitive ability but just because of language.

Proposed Idea to improve teaching

1. Need to provide some guide lines to first year students so that they can easily adopt the new environment of engineering college.
2. We need to inculcate few soft skill and personality development trainings in curriculum and as well as we need to keep updating time to time syllabus of different subjects so that we can reduce the gap between our teaching and demand of industries.
3. We should plan our lectures and lab accordingly so that both should cover ame topic of subject simultaneously to make labs more interesting and can easily understand the concept of the subjects.
4. We should provide frequent training to our faculties so that they should be able to keep updating their knowledge.
5. Most important idea is that before joining teaching job

there should be a formal training for the faculties for

a. How to take effective lecture
b. How to conduct lab
c. How to do assessment

Now I would suggest to do research work on idea number 2 and 3 where I have mentioned that we should include effectively one course of soft skill and personality development in curriculum and then should compare the overall effect on the students and learning outcomes.

Then to cover the topic simultaneously in lecture and lab both by using research hypothesis as well as statistical hypothesis. By using traditional method as well as suggested method and taking different data from that. Finally, analysis of the learning outcomes of both methods.

Thus, for a real challenge of improving technical education, we have to make sure that the educational system is truly aware of the psychology of the slow learning student's experience as well as we need to provide appropriate platform to the faculties to keep growing their knowledge and abilities. Presently we are supposed to work in all three dimensions to make our education system most efficient.

We need to Design updated and appropriate curriculum plus development and improvement in the teaching methods.

We should to develop a well-organized technical

education system including course work, evaluation, assessment, training etc.

62. Changing Trend of Engineering Education

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As we all know Engineering is the application of science. Unfortunately, the teaching practices followed in majority of Engineering institutions seem to be ironical. Many of today's discipline-oriented, research-intensive universities curriculum are not really designed for students to experiment in the true sense of the world. Henceforth the problem-solving skills are not enabled or truly speaking ignored.

According to All India Council for Technical Education (AICTE), out of the eight lakh graduate engineers from technical institutions in the country, more than 60 per cent remain unemployed in India. This is an alarming fact which seems to be the threshold for me to write this article.

Now we are in the cross roads of Engineering education. The need for an engineer to have both technical and social expertise is vital. According to the Mann report in 1918, the role of the Engineer must involve the following.

Apply scientific principles to production, Manager, provide technical advances to larger economic system, Member of a team that includes management and technicians, Advance technical breakthroughs, Leadership. Tackle societal problems

and according to the Grinter report in 1955.

Preparation of the Engineer should have a focus on the following.

- Learn science.
- Apply science in mechanic arts.
- Managerial skills.
- Build character.
- Predominately technical.
- De-emphasis of social.
- Two tier system undergraduate and graduate.
- Technical preparation in social context.
- Able to function on a team.
- Function within social-technical system.
- Leadership and management. Hence Mann and Grenter are alike in their conclusions. As my article is to suggest something for the preparatory session of an engineer let me list down some of the practices to be adopted in teaching.

Preparatory course for the educators are necessary to keep in pace with the rapid changing trend of the employability needs of this education. Faculty development programs should be implemented regularly for the educators on weekly basis or fortnightly in the form of technical training and industrial visits.

Universities and the affiliated institutions should be scheduling this FDP as a part of their job responsibilities. Also, sufficient and flexible time slots should be given as a choice for undergoing these tasks to motivate them for continuous learning process. Assignment of class works and lecture or demonstration hours should be judicially scheduled. When the educator is motivated and encouraged for his efforts and participation the same will be reflected in their classroom teaching. This again becomes a positive aspect of the trainer and he will tend to take forth the same level of encouragement and appreciation to the students. Hence the effective professional development skills of the educator have a direct impact on the teaching process. This should be the role played the management of the institutions to keep their employees well informed.

The class room / lecture sessions seem to be boring. this is a general feedback of the students irrespective of their disciplines of education. Identification of factors to improvise the sessions should be a major concern to rectify this draw back. Now goes the role of the professor or educator who delivers the lecture in the class. The professor may start with a motivational quote or an interesting incident in the history of engineering, relevant to the topic to be handled on that day. The session should be interactive according to the level of complexity of the subject or topic. Surprising facts and recent trends or advancements related to the topic can be told or explained in between the lectures before switching over to the sub topics. Attention seeking quiz or rapid-fire rounds can be conducted at the end of the session for a time

period of 5 minutes especially for theoretical subjects. This will help the class to recollect the information shared during the lecture. Also, the class can be indirectly insisted to participate by providing some weightage or marks which will contribute towards their internal assessment.

Once in a week class room seminar can be given to students who lack in social behavior of not mingling with the class during the learning hours. This will be an act of encouragement or motivation to those kinds of students who cannot be expected to volunteer themselves in classroom participation. This exercise will try to bring out their social skills. The highest benefit of this practice could be identifying the leadership in them and the least of it might workout as well in honing his/her communication skills as a team player. Both aspects are needed for a budding Engineer to survive and sustain in the evolving trends of the Engineering Industry.

Management role of an Engineer is vital in the industries. Project Management must be an integral part of the curriculum. The institutions generally choose the skilled students and assign such tasks for conducting curricular/cocurricular events. The major part of the class will be silent observers with nil participation. Instead class of students can be divided into teams and the major task can be segregated into minor tasks with some specified responsibilities for each team. These projects could be an ongoing work inside the campus or preparing some educational models for their labs or a social relevant project in their community which is of minor duration say 2 to 3 months.

These types of assignments keep them aware of their social responsibilities together with an exposure for project management.

The demanding trend in the employment sector is that it is looking forward for a skilled candidate in a specific area rather than for an all-rounder with academic brilliance. Hence industry specific technology-based training is an important requirement for students. Minimum of one such training per semester must be provided to the students. This can be done directly by industry tie-ups or by the professors as facilitators supported by the industry. Make-believe concept of learning always succeeds.

To put it in a nut shell the teaching practice should be modified in such a way that the direct participation or involvement of students must be the core of the education system around which the modules are to be designed throughout the learning period.

63. Improving the effectiveness in Teaching -Learning Process

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Education plays a vital role in determining the future growth of a country. A teacher in education is the person to educate the child, youth or citizen of the county. Teaching is an art. A popular saying says, "Good teaching is ¼ preparation and ¾ theatre". It is perfectly true, a teacher must be a good entertainer to grab his/her audience's attention, before he/she can teach his/her lesson. Teaching is a noble profession that shapes the character, caliber, and future of an individual. The teacher must perform the art with his fullest passion, determination, clarity and enthusiasm. Teaching professionals should use these principles as a basis for the determination of their own instructional effectiveness in the classroom. The purpose of this research article is to emphasis the need to improve the effectiveness in the profession of teaching to suit the present students' requirements and understanding.

A teacher must be a good student. Every teacher must have zeal to learn, develop, change, research and implement new concepts, idea, thoughts and innovations. I would like to quote Albert Einstein words, in which he says - , 'I never teach my pupils; I only attempt to provide the conditions in which they

can learn.' A teacher must always keep in mind that all student can't learn the way it is taught, maybe teaching should taught the way they learn. A teacher must teach the way in which one want to be taught. This is the need for the hour. Students have lot of exposure, knowledge on technology, social contacts, media guidance, independence in thought and decision. Children are no more raw clay to be shaped. Most of them are pre-formed, teachers just need to assist or guide them to become self corrected.

Teachers, instructors, lectures or professors are required to fulfill many roles in their profession and perform many duties that may be considered ancillary, apart from the core job of teaching. The purpose of varied roles and responsibility is to facilitate student learning. In totality, the learning process must lead to a change in behaviors, attitudes, or capabilities of a student so that he can transform into a better person required for the industry and as a individual. An efficient teacher in this process promotes inspiration for a higher level learning for prospective future of the student.

Hence a teacher must make a clear cut lesson plan, with varied activates to each session to make the learning process interesting. Here are the few points a teacher must remember and adopt for improvement in teaching –learning process.

1. Fore see the result

The teacher must clearly understand what the student

wants. The teacher must share the outcome of the course and/ or even the topic before the content is taught. The student must know what they want to know or rather do from upon learning. The objective and outcome must be specified before the start of the course. The teaching learning process, assignment, project, demo, practical skill acquirement and other related activity must be towards the desired outcome.

2. Participatory learning

Students may be brisk in the morning hours rather than afternoon, where it is difficult to grab the attention. One of the better ways to know where the students have grasped from this teaching learning process is make student involve in the class. This may be done by asking questions, making them solve small problem in class room, group discussion, brainstorming session, bring their own idea, asking for their opinion, etc. Student participation in the learning process will give an instant feedback to the faculty on their level understanding.

3. Relate the topics

Students will be able to understand from the concepts what they see around them. Hence examples related to their know area will help the students to remember for a longer time. At the same time, too much of example will carry away the student from the main topic.

4. Continuity in the classroom

It is very important to relate the previous class topic to the present topic of the course. Recalling the gust of previous lecture will help the student to relate the present content. Similarity summarizing the topic before the end of the teaching learning process will help the student to remember the learning. The presentation should have the outline and the teaching process must relate to them.

5. Pictorial representation

A flow chart, sequencing diagram, layout, circuit, charts, picture, demonstration., etc where a logic, sequence and pictorial representation will improve the students visualization character and recall, decision, analytical and evaluative thinking. This process will also make the student to remember for a long time.

6. Time for learning

All students may not be of same background or caliber. Teacher must identify a advanced learner and a slow learner for the course. A student strong in a field need not be the best in all courses. Hence a teacher must provide sufficient time for the student to understand, think creatively and indeed motivate him for further learning. The teacher must bring out the individuality of the student and assist him to boost his morale.

7. Use of ICT tools

Technology has growth to a extent that without it living would be very difficult. Students are well versed with technology and its usage. Teachers must make use of the technology to make the student accessible. Web based assignment, video lectures, online feedback, video of the process, product. Etc., will enhance the teaching learning process. However, these tools have limitations and have a large scope in future.

To improve the performance in teaching, a teacher must adopt a versatile strategy. There must be an innovation and new technique adopted in teaching for every session. As no two movies, epics, drama are same; adopting a single technique for the entire course of a curriculum will make the audience i/e. student boredom. Hence as a teaching professional, one should be willing to engage in the rigorous self-examination of our own teaching philosophy, methodology, and effectiveness in teaching to meet the needs of the students, or else students will adopt Google as their teacher.

64. Enhancements in Teaching Practices

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In India, teachers of technical institutes are still following the ancient ways for teaching. No doubt, the aids are still creating the impact on students but not each and every student.

The teaching is in actual fact depend on teachers. If the teacher is updated with current technical topics, practical applications, industry requirements and exclusively willing to provide knowledge to students apart from scores or marks then it is definitely helpful for students for lifetime.

So teachers be supposed to use various technique s to give explanation of that particular subject to students like day to day examples, realistic or practical examples, design examples ,animations , software tools , industry applications, case studies, discussion, in house mini projects, hands on sessions , smart boards etc.

According to me, technical/practical knowledge of students must be improved so that they can use it to develop the applications. As per current industry era not only idea is important but also the implementation in terms of application is crucial.

For above necessities institutes should guide teachers by sending them for training at a variety of industries. In similar way its responsibility of teacher as well to update himself/herself for knowledge.

When students attend the lectures at start of semester, they do not have any idea about the subject, so its teacher's responsibility to put in plain words the content of subject in such a way that he/she get interest in that subject. For this, teachers should also have the complete knowledge and practical applications of subject. Teachers must use various tools, as mentioned above as per various topic of syllabus so students also get curious about subject and will definitely attend the lectures.

As per my opinion, try to avoid power point presentation with numerous slides, instead better use it for animated power point presentation with very less number of slides. Therefore, that student understands the systematic explanation of that particular topic. Avoid reading of slides.

For circuit's explanation, don't tell students how to draw circuits. Because a primary school student can also draw the most complicated circuit by considering it as a picture or drawing.

So tell the students that drawing of circuit is not important, the most important is reading of circuit. Once you know how the circuit works from diagram, you can draw the diagram very easily.

Explain the students how to view the circuits, what

aspects you should keep in mind while you examine the circuits, which common concept / rules/ methods you should apply to easily acquire the working / operation of circuit. This methodology gives the students a different view /idea about circuit operation and designing.

These are different ways to teach students to teach circuit related subject. For my current semester subject I am using these methodologies.

As a result, students become more confident and ready to design their own ideas as a hobby, competition, mini project, project etc. Definitely, knowledge and confidence gives beginning to new opportunities in their life to be successful as a technological engineer for the development of our nation.

65. Strategies to improve Teaching and Learning through Innovative Practices

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An interest towards the course content and a readiness to convey that eagerness to students is a very important factor to effective teaching and learning, but you also need to make sure the techniques used to convey that knowledge are up to the task. What we teach and how we teach it are mixed up.

Much of the evidence concerning effective teaching practices comes from research which involved direct observation in classrooms. Moment-by-moment actions and reactions of teachers and students were observed and recorded. Measures of teacher behaviour were then correlated with students' learning outcomes as measured by calculating attainment.

The effective teachers:

- Creates learning environments where students are active participants as individuals and as well as groups
- show enthusiasm
- sustain an academic focus
- make use of modern pedagogy tools and techniques for

effective teaching

- ❖ have high outlook of what students can be helped to achieve
- ❖ use strategies to keep students on task and dynamic
- ❖ provides essential supports for students who are struggling with the content.
- ❖ enforce structure on the content to be covered
- ❖ present new material in a step-by-step manner
- ❖ make use of direct teaching procedures
- ❖ creates an environment where student work is valued, appreciated and used as a learning tool
- ❖ use clear instructions and explanations
- ❖ use a variety of teaching styles and resources
- ❖ habitually demonstrate appropriate task-approach strategies
- ❖ monitor closely what students are doing
- ❖ adjust instruction to individual needs and re-teach where necessary
- ❖ provide frequent feedback to students
- ❖ use high rates of questioning, to motivate students and to check for understanding

Presenting information and providing explanations are two of the main activities in which teachers connect. The value of

student-to-student (peer) explanation strongly supports the concept that two-way and cooperative work in the classroom is an essential part of effective teaching and learning. Group work certainly increases the opportunity for fruitful discussion among students, which is something known to ease learning of concept. Searching for the best way to teach assumes a kind of simplicity about teaching and learning.

- There are well-defined instructional techniques before starting the course that make teaching more effective.
- Conducting hands-on training and working with real-time applications will make the students to understand the concepts clearly and it helps them to involve more in the subject.
- The techniques can be introduced slowly and methodically as per the well defined structure, without compromising coverage of the syllabus. They do not require large expenditures of money, time and effort.
- Most importantly, the techniques have been validated by careful, documented and repeatable.

The students can easily understand by

- Visualizing the concepts like arranging field trip or real time working videos.
- Working together (brainstorming) as promoting small group or whole class activities.
- Posting questions which inspire your students to think for

themselves and become more independent learners.

- Maintaining worksheets for different group of students based on their capability.
- Interactive learning when technology is used to engage during lessons like mobile devices, iPads or tablets.
- Implementing an effective behavior management strategy is crucial to have an equal chance of reaching their full potential.

Rather than simply using Black Board and ICT we have to use the Teaching aids like Pedagogy Techniques (Think Pair share, Flipped Class Room, One Minute Paper), Role Play, Group Discussion, Seminar, Case Study, Quiz, Problem Solving, Puzzles, etc., will progress the students interest towards the subject.

Being an effective teacher is a challenge because every student is unique; however, by using a combination of teaching strategies you can address students' through varying learning styles and academic capabilities as well as make your classroom a dynamic and motivational environment for students.

We as an effective teacher attempt to motivate and engage all our students in learning rather than simply accepting that some students cannot be engaged and are intended to do perform poor. We believe every student is capable of achieving success and they do all they can to find ways of making each successful according to their passion. Effective teachers have high expectations of students in terms of both their standard of

learning and their behavior, and they help students to meet those expectations.

66. Learning styles and effective teaching in Engineering Education in India

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Abstract

There is a two types of education system, first one is knowledge-based education system and exam-based education system. Education in India is exam-based education system. This article briefly discusses different types of learning styles and identified teaching practices that should meet the needs of students learning styles.

1. Introduction

Engineering is an application of physics and mathematics to solve technical problem economically includes design, analysis, optimization synthesis and evaluation. Nowadays learning style in engineering students are different, in the digital world online learners also increase. Based on the different learning styles of students, faculties are need to self-improvement and identified students learning styles. But now a day's available time for the faculties for self-improvement have gone downed due to more clerical work. [2]

2. The factors affecting the education of engineering students in India

There is many reasons for affecting the education of engineering students in India some of them are, many students come from rural area and lack in communication skills, many students join engineering due to the compel by parents, relatives, neighbors, and friends. Recently students writing skills, reading skills, learning skills are comes down. Students are preparing for his exam only on neck at the moment.

3. Learning styles

3.1. Visual learner

Visual learner is an important in the area of engineering education, visual learners are used tools for learning are graphs, diagrams, flowchart, animations, etc., the unique characteristics of visual learners are They can remember what they need rather than what they hear Ask a lot of questions to clear doubts They prefer work alone rather than in groups

3.2. Verbal learner

In the verbal style learning they prefer written and oral explanation. some methods of verbal learning are Serial learning -serial learning is memorizing a list of words in a particular order Paired-associate learning-Lists a stimulus and response item together.

3.3. Sensing learner

Learn with concepts and procedures and find how to apply the concept in the real work, sensing learners best when given facts and procedure.

3.4. Intuitive learner

Intuitive learners mainly focus imagine model, conceptual work, theory. Intuitive learners are much more memorization.

3.5. Active learner

Active learners are study in groups and explain different topics to each other. They deliver in loud voice.

3.6. Reflective learner

Reflective learners learn by thinking about information. They prefer to think things through and understand things before acting.

3.7. Sequential learner

Sequential learners prefer to organizing information in a linear, orderly fashion. They learn in **logically sequenced steps and work with information in an organized and systematic way.**

3.8. Global learner

Global learners prefer to organize information more holistically and in a seemingly random manner without seeing connections. They often appear scattered and disorganized in their thinking yet often arrive at a creative or correct end product.

4. Effective Teaching Method

The aim of teaching is simple and straight to make students learn possible easier and more enjoyable. Good teaching means meaningful learning, skills, attitude. In order to make a desirable change in learners. The goal of teaching is to help students learn. Good teaching will make students to think critically and discover new information. Some teaching learning methods to motivate students are collaborative learning [4], blended learning and project- based learning etc.,

Teaching styles for the visual learners are to show some graphs, diagrams, power point presentation by projector for the students in the class room. The teaching styles for the verbal learners are lecture, reading, discussion. The teaching styles for the sensing learners are given some case studies of technical facts. The teaching styles for the intuitive learners are given more theoretical notes and conceptual work. For active learners' students participate and presents a seminar topic in front of the team. The teaching styles for the reflective learners are watch and listen so video lectures are more preferable.

Some key points to effective teaching in class rooms are

- Begin and end with a summary of teaching
- Avoid reading lesson plan
- Be flexible
- Move around the class room
- Pay attention to the struggling students
- Pay attention to the most successful students

Conclusion

Now a day's students are feeling bored in the traditional teaching and power point presentation and also feel bored with continuous teaching in the class room different learning style students are present so change the teaching style in the class room is required.

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67. Content Delivery and Assessment Methods for Engineering CS/IT Courses

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Learners of countryside background, face different types of problems and challenges when they do their higher education in urban areas. Their culture, custom, and the way they had been taught in their schools are entirely different. These differences are the major concern for some students and they usually perform low in their higher education. It results in de-motivation of individual and impacts their overall performance. Only very few students cope-up with the new environment (College) and adapt to it.

The Computing domain is the vast changing field in this internet and mobile era. This field contains different computer hardware and software related courses for the students to complete their graduation in Computing or Information technology domain. All software recruiting companies look for candidates who outperform well in the technical round. All basic or foundation core courses have to be taught to students in such a way that they learn all the concepts and relate them to real time requirements and applications. Traditional classroom teaching method may not suffice this requirement. Also, there won't be enough time to train the students again on these concepts before

their placement. In order to make the students to perform better during their placement, the course faculty has to adopt different teaching styles while delivering the concepts. Students do not learn unless they apply their learnt concept.

Teacher centric curriculum is being slowly changed to learner centric curriculum to overcome these issues. Suitable instructional design models are being used inside and outside the classrooms now-a-days to improve the understanding ability of students. Blended learning practices, collaborative learning, scenario based learning and project based learning help the students to perform better in their assessment and evaluation.

Many Education Technology researchers proposed different methods to improve teaching learning process. Collaborative and interactive learning platform for Uttarkhand schools was proposed for learning mathematics (geometry) and science using open source tools (Pandey, 2012). Blended learning had been adopted (Xiaojing Liu, 2013) to teach Data Structures and Algorithms course. The faculty used this model for teaching methods and experiments through different techniques like visual demonstrations, project- based learning, eLearning, and so on. Pair programming model has been adopted (Phil Maguire, 2014) to teach courses like computer programming, data structures, and so on for the students who have not studied computer science courses in their school days. The use of mobile apps and gadgets inside the classroom was proposed for teaching mathematics and science (Nail, 2017 &Bano 2018).

Blended learning is a mix of traditional classroom

presentation and ICT based content delivery which may have higher learners' engagement. Blended learning helps to achieve active learning participation of all students when it is delivered as eContent during the face-to-face interaction in the classrooms. The learners prefer game-based learning which is increasingly becoming an effective training tool within the education and training community. It has its own advantages like simplicity, cost- effectiveness, and involvement of learners through physical movement. eLearning or mLearning enables the learners to participate in the learning by remote access. This liberty of time and space engages all types of learners and creates interest in the topic of learning with enthusiastic participation.

Blended learning practices enable the learners to access quality content from home or school or college, communicate with a large community of learners and teachers, and work online. It helps all the learners to communicate, collaborate and enhance their learning with new ideas. Blended learning motivates the learners to participate in online discussions and it is more significant than in the classroom discussions. This type of blended learning improves the affective domain of learners and thus improves the professional education of learners.

Collaborative learning makes the students to learn in a more formal way in a team. It increases the student engagement and there exists continuous interaction between the participants. It improves critical thinking and problem-solving capabilities of learners. Courses which require these technical and soft skills can adopt Collaborative Learning strategies. Apart from the

improvement in these skills, it also improves their behaviors in communication, team building skills among the students and so on. It ultimately shows greater improvement in their campus placement, which is the ideal objective of every graduate today.

It is a common practice that the pedagogy practices with quality and set of well-defined measurable learning outcomes have to be clearly identified in prior, before the implementation of blended learning approach. The assessment and evaluation mechanism have to be developed in order to foster the improvements in blended instructions. The blended learning practices provide focus for teachers while designing learning experiences with the use of technology to cater to the needs of all types of learners.

Student engagement is the challenging task for the course handlers. Students have much distractions and diversions and not listen to the class keenly. So, classroom teaching should be blended with traditional and active learning strategies. Collaborative learning tools and techniques make all the students to actively participate in the learning. These activities definitely have positive impact in their knowledge gain and skills acquired.

The participation in different Faculty Development Programmes such as Foundation Program in ICT for Education, Pedagogy for Online and Blended Teaching-Learning Practices, and Mentoring Educators in Education Technology offered by IIT Bombay motivated us to practice new teaching methodologies and ICT tools to our students. We would like to share our experience in this chapter.

68. Effective Techniques to Improve Teaching Practices in India

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Education, like almost every other area of our society, has evolved in leaps and bounds in the recent years. The teaching practice is not a "teaching perfection" which emphasizes that practice implies continuously working to get better performance. Becoming an effective teacher involves seeking out knowledge from various inputs that can enable you to reflect on and to improve the teaching and learning. Teaching practice is a set of skills supporting the overall work, and improving those skills day by day. Traditional teaching techniques are mainly based on how a teacher explains a topic and students understanding capability. But education today, revolves more around encouraging the student to awaken their curiosity and desire to learn. The use of technology in the classroom has simply given education a new lease of life allowing us to approach old ideas in new ways. There are various practices for effective engineering teaching which are followed. The Flipped Classroom Model basically involves encouraging students to prepare the lesson before the class. The class becomes a dynamic environment in which students elaborate on what they have already studied.

Students prepare a topic at home so that the class the next day can be devoted to answering any questions they have about the topic. This allows students to go beyond their normal boundaries and explore their natural curiosity. The design thinking technique is based on resolving real-life cases through group analysis, brainstorming, innovation and creative ideas. Although "Design Thinking" is a structured method, in practice it can be quite messy as some cases may have no possible solution. However, the Case Method prepares students for the real world and arouses their curiosity, analytical skills and creativity. An organization's success depends upon the building the quality of the relationships of its people. When co-workers realize that their colleagues are caring, supportive and focused on doing the right thing, then great things can follow. This is applicable to student-teacher relation also. This places an important focus on mindset and attitude of students. Rather than getting pulled into the sour attitudes of disillusioned students, try to focus on the positive aspects of the students. Be positive, regardless of the challenges, you will find that like-minded students will be drawn. To focus on students experiences don't limit yourself to building relationships with students who share a similar character or subject matter. Rather, find students who like to focus on activities that are best for the children. This can include school wide learning projects, social service activities or special functions and assemblies. One of the most gratifying parts of our job is attending a large group activity where students go above and beyond in learning. We also found that out-of-the-classroom experiences such as guest lectures and technical interactions

really set the best learning experience for students. The explosion of connection in our culture due to technology has been nothing short of amazing. With a few quick search terms and some time on the computer, a teacher can find examples of good practice and the research that supports it. Not only will you be able to take away specific tips for improving your skills such as organizing student work, maximizing the effectiveness of assignments. But you will also be able to make connections with students who otherwise would be unavailable to you. Teaching looks like an individual profession. To building Collegiality with students the teacher, usually the sole adult in classroom has the responsibility to work with a group of children on a certain subject over the course of a year. Digging deeper, however, reveals that successful teachers are far from alone in their profession, but instead have built strong relationships with students over time. Teachers just naturally knew what to teach and when to teach it. Content sprang miraculously from their minds, got written down in old pen-based plan books and magically became a part of every child's classroom experience. Content flowed effortlessly from the teacher to the student and all was well in the classroom. A deep understanding of curriculum is not enough to meet your class's content needs. Excellent teachers have always needed to stay current on their content as it evolved over the years. Research shows again and again that the most efficient way to improve content knowledge is to sit and work with colleagues who have the same responsibilities. Use these opportunities to discuss best practices in the classroom, deepening content knowledge and sharing

effective learning strategies. The teacher has the responsibility to obtain feedback from students on time basis. This enables you to get feedback about the learning that has transpired in a particular class period or after a specific activity. More often than not, we reflect on our teaching in isolation, without realizing that our own students can be a great source of feedback on teaching and learning that takes place in our classrooms on a day-to-day basis. This type of input comes too late to be of use to you and your students during the current semester. After reviewing their responses, decide what you can and will change and what you either cannot change or find pedagogically unwise to change. Curiosity is the main driver of learning. As a basic principle of learning, it makes little sense to force students to memorize large reams of text that they will either begrudgingly recall or instantly forget. The key is to let students focus on exploring an area which interests them and learn about it for themselves. To improve the teaching learning process there is an array of free online learning tools available which teachers can use to encourage the students and in turn make them engage which leads to participation and having a sense of fun in the classroom. The teachers can create an interactive and dynamic classroom environment using online quizzes to test student's knowledge and develop their learning skills for betterment.