

Mobile Learning–Innovative Teaching and Learning Technologies

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Abstract: Education is an enlightening process by which a teacher teaches and a pupil learns. Education process has flowed down from ages but the systematic approach to education has been done only in the last 2 centuries. The education given for a man is not only for his survival but it should also serve for his self fulfillment, reasoning and rational thinking.

The traditional methods utilised for teaching and learning were with chalk and black board. Most often it would be teacher talking and the pupil listening. In this medium, much of the learning was teacher centric and the focus on the pupil was sometimes rather much less. Also, studies conducted have stated that the amount of the concepts taught by the teacher and registered only by listening are less than 20%.

In the present day scenario the pupil is accustomed to the e-technology. If the e-technology savvy pupils are taught using the e-tools, the rest of the body senses other than only hearing could be also involved in the learning process and hence the rate of learning of concepts achieved could be higher.

The present day student looks beyond the four walls of the classroom using the e-technology and achieves learning. This paper presents the methods and the various tools that have been employed at various places for the teaching-learning process using the e-technology.

1. INTRODUCTION

Education is a teaching learning process wherein knowledge and skill transfer occurs from the source i.e. a teacher to the receiver i.e. the listener. In the traditional system, the teacher talks and the listener listen. In order that a better understanding of the subject matter occurs and to supplement the teaching, the teacher also uses chalk and a blackboard to write and also sketch the figures to explain. But, as quoted out by Confucius, the Chinese philosopher, 'I hear and I forget, I see and I believe and I do and I understand', in the traditional system of TTC (i.e. Teacher Talk Chalk as it is also known as) allows only the first part i.e. hearing of the matter and partially the second part of seeing and believing. It is a known fact that on an average only about 15 to 20% of the matter is retained by the listener when he hears.

2. PURPOSE OF EDUCATION

Education is given not only to make a person literate, but also to make him knowledgeable, self sufficient and capable of

rational thinking and reasoning. The TTC method makes a person literate but most often does not address rationale thinking, reasoning and self sufficiency through proficiency in performing skills. Anne Isabel Thackeray in her novel Mrs Dymond rightly quotes 'Give a man a fish and he will eat today, teach him to fish and he will eat everyday'. This statement points out the drawbacks of the TTC method and stresses the need to change the teaching to the PALM i.e. Pupil-Activity- oriented Learning Method.

3. MEDIUM OF EDUCATION

There is a vast difference between the pupil of yesteryears and the present day one. Today's pupil is bombarded on all sides by the television, the computer games, electronic gadgets, etc. The pupils are being taught computer knowledge and skills at schools right from the primary level. India has the largest mobile usage in the world at more than 886 million in 2013, which is even more than double of that of United States alone which is at number 2 position. The Indian youth due to this have an advantage. This generation being computer savvy has a greater grasp over mobile handling as compared to the previous generation. While teaching, if the medium of instruction is changed from chalk and blackboard to a user friendly electronic medium, the rate of transfer of data would be higher and the knowledge gain also would be significantly higher.

4. TOOLS OF EDUCATION FOR THE PRESENT GENERATION

In the present scenario, the student is no longer bounded by the four walls of the institution. He looks forward and uses the e-technology to learn and achieve the learning goals. Today, fortunately there are many multimedia tools available which create more interaction amongst the teacher and the user.

1. Bluetooth: is a device found on computers, laptops, mobiles, etc on which the data transfer can be easily carried out in groups or individually. It has been observed that while dictating and writing the notes very small

percentage of the information actually registers in the brain. While dictating a pupil has to recognize the words said by source (teacher) based on sound, distinguish between different words uttered, register in the mind what is dictated, spell the words out in the mind, and then transfer on the paper by using mechanical skills (writing) and the cycle repeats. This method is good for subjects like 'Language Teaching'. In subjects where more explanation or problem solving is involved a teacher rather than dictating the notes and making the pupils copy them down can easily transfer the digital notes from his device to the devices of his pupils. It has been observed that by this method of sending the notes via Bluetooth about 30 minutes of extra time per hour is available to the teacher which could be utilized for problem solving, discussions, etc.

2. **Pod-cast:** is a digital medium consisting of audio, video, pdf or ePub files downloaded or streamed on to a computer or mobile. In this the files are uploaded on the distributor's server and the user uses podcatcher software to download the files and use them even during the offline mode. Any institution can podcast its lessons via podcasting and give the links to the web pages. The files can then be easily downloaded and used by the pupils.
3. **Blogs:** is a discussion or series of comments written on the web pages by a single author or multiple ones in the reverse order i.e. the recent first. Many blog sites are free to use and could be used for teaching learning processes in which the teacher could give information and allow the students to go through the written blog content. The pupils could then freely express themselves regarding the explanation required pertaining to any point.
4. **Social media apps:** The number of WhatsApp users have been increasing at the rate of 160%. Today's pupils are mostly connected with each other through WhatsApp. This application permits the formation of groups. If depending upon class groups are formed, then the discussions can be organized over the fingertips. The non-classrooms time which forms the non-productive time (as far as teaching is concerned) can be utilized by pushing a query on which discussions could be carried out. On the WhatsApp, videos, lectures, images can be circulated which could facilitate learning. Any question posed by any pupil can be answered by anyone from the group and then the teacher could be the facilitator in identifying the correct one.
5. **Social media like Facebook, Twitter:** The Facebook, Twitter are also the favorite media as far as pupils are concerned. They can be encouraged to post the pictures, videos of the relevant topics and the class pupils could be tagged for the reference. If the web link to the necessary web pages is given, then the pupils could get additional information from the necessary links. It is a well known fact that about 75 to 80% of the students refrain from getting their doubts clear in the classroom thinking what the other students from the class would think if the questions were asked. They feel embarrassed to ask and get their doubts cleared. The same embarrassment hinders their movement to the staff room to get the doubts cleared. These pupils could find it encouraging to use the messenger section to send the queries and get the doubts cleared as the privacy is maintained in these sections of the social media.
6. **The quick communication channels via smartphones, tablets, phablets and laptops:** facilitate the searching and distribution of the information on the net. They also help to create lecture content. These instruments being mobile allow the information to move beyond the classroom boundaries. The laptops and tablets are very effective tools for classroom projects. The laptops, tablets, phablets and smartphones have the following advantages: a) Ease of movement b) accommodative c) no dangling wires d) compact as compared to desktops e) convenient and f) simple.
7. **Other Applications:** These days plenty of Apps are freely or cheaply available on the net. The relevant Apps could be downloaded which help the pupils to analyse the matter and design the processes too. Many educational games are available which increase the mental process and reder the brain sharper.
8. **Moodle:** (*Modular Object-Oriented Dynamic Learning Environment*) is a free e-learning platform software. It is also known as a Learning Management System, or Virtual Learning Environment (VLE). Moodle software helps the teachers to create their own courses and put on the web. Moodle allows total interaction between the teacher and the pupils. Through moodle even tests can be conducted and the pupils can be evaluated online. This continuous evaluation helps the teacher to identify the pace of pupils in their studies. Thus the slow learners can be easily identified with this software. Special coaching can then be given to these slow learners to facilitate them to move at a faster pace.
9. **Google books:** offers free reading of the selected world class books. This is a virtual library which can be used by teachers to prepare their lectures and students to prepare the notes by enhanced reading on the relevant topics. Rather than purchasing the books outright which would be a costly affair, one can refer these books to get the best possible information at their finger tips. Similarly, the other sites like scribd, bookboon, bookrix, etc also offer to download e-copy of the books which is very useful in teaching as well as learning.

- 10. Online purchase:** Sitting at the home one can purchase the books required online. Many sites offer discounts on the direct purchase of the books. Some e-books can also be purchased online and referred. Ebooks are available in many formats such as pdf, ePub, eBBEB, compile HTML (chm), Digital Accessible Information SYstem (DAISY) for people with print disabilities, kindle, etc.
- 11. Tablets with projector facility:** are available now. They are so handy they fit within the pocket and can be carried to the classroom. They run on the tablet battery and as such the projector facility of the tablet can be put to use to show the videos, procedures which otherwise could not have been possible to be shown in a class. These tablets allow the projection to be made on the wall and the ceiling too. E.g. N.S.D.C., Pune uses the tablet with projector in training the pupils in technical skills at the construction site.
- 12. The presentation software:** like M.S. Powerpoint software along with CorelDraw, Adobe Photoshop and others can be used to create good presentations and images which can make the teaching lively and interesting. Smartdraw software helps to draw the flowcharts, AutoCAD software can be used to draw technical drawings.
- 13. Interactive Graphic Board:** is a white graphic board connected to a computer. The lessons can be tailor made with the help of software on the computer and present with the help of the interactive board. The special feature of this board is that it allows changes to be made, sketches to be drawn, problems to be solved while the presentation is going on over the interactive board.
- 14. Use of 2D and 3D animation software:** from various companies can be used to create animations showing different processes in the classrooms. Software such as Adobe Flash, Autodesk Animator, Apple Motion etc allows one to design the modules easily. The difficult processes which otherwise could not be shown to the pupils can be easily represented with such softwares and projected in the class.
- 15. Free video download websites:** such as Youtube, MetaCafe, DailyMotion, Vimeo, etc offer many video clips for free download. Pupils could be given the url's of the required clippings and be encouraged to refer the sites for a better understanding of the subject matter. Many web sites offer free lectures and one can take the advantage of that. Following sites <http://www.learnerstv.com/>, <http://warrington.ufl.edu/undergraduate/myheavener/videolectures.asp>, <http://ocw.mit.edu/courses/physics/8-01-physics-i-classical-mechanics-fall-1999/>, www.nptel.ac.in, etc offer the free lecture content.
- YouTube EDU and Open Courseware Consortium give a wide range of study video material online.
- 16. Making a video film:** on the site where the work goes on, enables the teacher to show how the actual process occurs on the site to the pupil. Once the video is made, the same is edited by using editing software like Pinnacle, Adobe Premiere, FCP, etc in order to explain the construction process. This methodology could be used to present different processes the way they happen on the site. Use of VFX, Sound Forge, 3D Studio Max can be done to enhance the quality of the video clip thus made. The video films can be posted online or CD's or DVD's can be made and kept in the institute's library for ready reference and the pupils could be encouraged to refer them. The video matter thus created could also be uploaded on the net and the reference to the same could be given to the pupils. This would allow the pupils to obtain a faster recall when they are seeing the videos at home.
- 17. The notes writing tool:** The students today could be made to create the notes on Mobiles, Samsung galaxy tab. These are handy tools and the students are much faster on these tools and whenever they are taken for site visits, they could be asked to take the notes with these tools. They could also be encouraged to click the photographs with the mobiles which could create a faster recall later.
- 18. Use of mind map:** A mind map is a graphic created to organize the information. which visually organise information. A single concept is written or drawn at the centre of the paper from which primary branches are drawn leading to additional graphics or text drawn as images or text which represent ideas or information leading to the central concept. The further branching out represent the secondary information points or concepts. The whole graphic thus drawn represents the overall concept. The graphic helps in depicting what plenty of words would actually be required to write to describe the concept. Mind mapping software could be used to represent this information with the help of computers.
- 19. Creating a conducive learning environment:** is very important in an institute. Traditional classrooms did lack that. The Libraries could reflect what the student is learning. Engineering concepts in pictorial form, mnemonics could be displayed on the walls of the walls of the Library or the practical halls by means of Touch screens or TV screens. Pupils could then use these tools to navigate further and learn the concepts. Libraris could be developed as 'Think Centre' or 'Incubator Virtual Labs'! The facilities at the library such as to refer books, e-books, web pages, videos, library CD's and to perform virtual practicals with the help of computers.

- 20. Hybrid or blended programs:** to facilitate teaching learning at home. These 'Hybrid' or 'blended' courses are the ones in which a blend is created between the face-to-face classroom teaching and the online learning. In this much of the learning activity occur online and very little is taught in the classroom. This has the advantage of allowing the pupil to pace his study as per his capability and at the same time feel the classroom exposure and atmosphere of study.
- 21. Mobile calls and SMS:** Some teachers allow the pupils to call them up during the non-working hours to get the doubts cleared. Use of sms is also encouraged by teachers, as getting the mind blocks cleared at the right time is more important in the teaching learning process.
- 22. Global Classroom:** is a group of schools which have come together with a goal to create a world of peace, coexistence and responsibility. This global classroom encourages the pupils to be participative and dynamic contributors to learning evaluation. It also makes them more responsible learners. Here the information exchange occurs via video conferencing.

5. CONCLUSION

The present day classroom requirement is a combination of the traditional classroom and the e-technology tools which enables the pupils to decide what they want to learn, how much they want to learn and when they want to learn by pacing out their studies in order to imbibe the proper knowledge and skills to perform the tasks. For these students the four walls of the

institution is not the limit but the whole earth is a virtual classroom.

The net and the e-technology today has made it possible. Modern day's pupils can be given flexible schedule for teaching and learning and can get one to one instruction owing to this technology.

It has been noticed that the teachers using the mobile technology for teaching and also combining the more friendly e-tools for transfer of knowledge, find that the teaching process is a greatly facilitated.

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