Digital Learning Techniques-Recent Trends:A perspective from classroom teaching and learning

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Abstract

Technology tools for collaboration, communication, social networking, and user-generated content have transformed the traditional ways of learning. When applied efficiently, technology enables teachers and students to participate actively, produce and co-create information through the use of digital learning tools. They can help students innovate and learn strategies that combine in-person with virtual learning experiences. The use of digital technologies in the class room encourage active knowledge, comprehension construction, analysis, and exploration on the part of the learners, and which allow for remote communication as well as data division to take place between teachers and/or learners in different physical classroom.

***Keywords-**Digital learning,learning tools,BYOD,VR,PLN*

INTRODUCTION

Conventional classroom teaching and learning is teachers using the blackboard and students taking down notes. But nowadays classroom teaching and learning has become more effective through the use of digital methods. When digital technologies are used for educational purposes, it helps to create active classrooms and expressive learning experiences. With the advent of technologies like video presentations, online trainings, webinars etc. class room teaching has become more interactive.

IMPORTANCE OF DIGITAL TECHNOLOGY
Digital Learning

"Digital Learning is learning facilitated by technology that gives students some element of control over time, place, pathway and pace" (Digital Now Foundation, 2014). Digital learning is redefining and restructuring the way we learn and teach. It has utmost impact in delivery of the contents by the teacher and its accessibility by the learner. The popularity and demand of digital tools is budding at a fast rate. One of the most powerful learning experiences is provided by the digital environment which is inventive and interesting.

The method of teaching and learning will completely change in the scenario of digital learning. In traditional education system, teachers deliver the contents and students consume it. But now both teacher and student can deliver and consume information at the same time. In effect learning is becoming decentralized because of technology and access to information.

This pushes education systems to become progressively adaptive because of knowledge-pull from students. Educational software can contain artificial intelligence components where tutoring could be accessed. Students could control their own learning goals and manage their process of learning by interacting strategically with the content.

Digital Literacy
Today's students are born into a technology-based society. They can explore the internet to find out presentations, videos, text sources, pod casts or anything they would like to learn about etc. Hence it is very important to give digital literacy as they need to know how they should utilize the available technologies to interact with the world outside.

Benefits of Digital Learning
For the student community, the benefits of digital learning include development of psychomotor skills, decision making, improved academic performance, visual learning etc. which helps to improve the learning. It creates a bridge between learning inside and outside of class. In a survey conducted by a subscription-based children's edutainment service provider, it was found that 68% parents use online platforms to teach new concepts to their children, while 17% want to see positive behaviour changes in their young ones. The digital age has ensured that learning tools go hand-in-hand with other play activities.

From a survey conducted in 2011 by the above-said service provider including 1167 parents it was found out those digital tools can help a majority of students in positive behavioral changes and learning new concepts. The statistics is as shown in Fig.1.
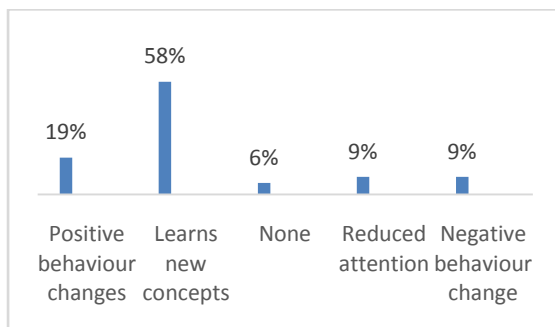
Fig.1.*Digital learning associated with positive learning effects*

Impact of digital learning tools
A radical effect on learning was brought in by the new age digital tools which helps the students to use technology more effectively. With the help of these tools it is much easier for the students to grasp the concepts, visualize it realistically, and also this improves their technical skills.

FUTURE OF DIGITAL LEARNING
With a vision to transform India into a digitally empowered society and knowledge economy, at the national level government has implemented schemes such as Digital India. In rural India, the awareness and execution of digital learning in societies and communities where people are still at lack for affording basic education, can lead to a detrimental growth in spreading knowledge and education. Recently many industries use technology as a training tool to implement new businesses or new products.

Digital Learning Tools and Resources
There are a glut of tools and resources that can be used to create and enhance a digital learning environment. Listed below are resources and tools 21st century teachers and students can use for digital learning [1].

Digital classrooms – Synchronous and Asynchronous techniques
The concept of digital classrooms is fast spreading into many universities and departments and attaining visibility. The combination of the Internet and multimedia make it possible that digital classrooms adjust many forms ofdistance learning. [1]. This type of learning creates a reform in the instructional delivery system.Digital classrooms can provide opportunity for students to develop both curricular and co-curricular skills. It takes the students beyond the four walls of the class room.

In digital classroom learning we can divide the class room into two- synchronous digital classroom and asynchronous digital classroom. In synchronous class room, the room is equipped with computer for each student and online students which can participate in the classroom via internet and a teacher using computer to learning with advance technology and managing learning process. In asynchronous digital classroom each student can participate in the class via internet at any time and from any place. Compared to synchronous digital classroom this is a student-centered teaching method that uses online learning resources to facilitate information sharing outside the constraintsof time and place among a network of people. The online learning resources used to support asynchronous learning include email, electronic mailinglists, threaded conferencing systems, online discussion boards, and blogs.

Synchronous classrooms are place and time bound but asynchronous digital class has no limitation in time and place.The process of learning in traditional class is understand, remember, synthesize and interpret knowledge which was drudgery but with digital tools it will be effective because there is a chance to repeat, practice and fail. In digital classroom, competence increases since student's attention is 100% on learning rather than on his notes and spellings. In a nick of time, students at various institutions around the world can exchange their notes and share their knowledge and understanding with each other.

Digitalclassroom also reduces the gap of qualification and knowledge of students in different geographical areas.[1]Living in any part of the world, by having a computer and access to internet we can enter a digital classroom to use the same resource materials and benefit the same teachers that are available for those who live in big and developed cities. It also has impact on the cost of education. For studying a course in a desired university, students donot need to move to that city, and pay for theirtravel and accommodation.

Gamification
This is a novel approach wherein the elements of games are implemented in learning environments to motivate the students and to bring interest in the courses. Gamification can be implemented in E-learning courses and learning management systems. Gamification in the classroom, it motivates, captures and retains our students' attention, it challenges them, it engages them and entertains them, and most of all it teaches them using various modalities which is a critical part of preparing them for 21st Century Learning.

Mobile Technology
Mobile technology has a myriad of benefits in teaching and learning process. It can be used to assist the students for video recording, live polling, doing video projects so that the student can demonstrate a much deeper understanding of the topic by creating a video, create online forums so that teachers and students can remain connected for a long time to clear doubts or discussion on a topic.

Cloud computing
Cloud Computing is an up-to-the-minute technology that has taken place transforming the way we deliver learning. Cloud Learning refers to learning in a virtual world that is interconnected through the web or mobile networks [1]. Most of the prime universities and campuses are steering up towards setting their campuses as Cloud campuses. These virtual campuses enable the teaching learning process in a very effective approach.

3D printing

With the aim of disseminating the gap between theoretical learning and practical applications students need to be offered with hand-on approach in learning. Visually seeing and physically touching objects are a great measure of the day-to-day human cognitive learning process and experience. It is a latest technology that helps transform a digital design into an actual three-dimensional physical product just with the click of a button!

Videos

E-learning videos are an effective way of acquiring quality content. A video can be as good as an instructor in communicating facts or demonstrating procedures to assist in mastery learning where a student can view complex clinical or mechanical procedures as many times as they need to. Furthermore, the interactive features of modern web-based media players can be used to promote 'active viewing' approaches with students [2]

Bring Your Own Device (BYOD)

In BYOD system students may bring their own personal devices instead of pulling out lined paper and textbooks. They can bring iPads, Netbooks, Tablets, and Chromebooks etc. The class is almost engaged as they open up digital files, to collaborate on research and writing, gathering, creating, and sharing a group presentation. BYOD can be successfully implemented in institutions located in low socio-economic areas to bridge the equity gaps in education provided the institution shouldhave facility for information and communications technology(ICT).

E-portfolios

A well-executed e-portfolio program is an incredible tool for higher education. They provide institutions with authentic assessments of student learning and promote the deeper learning that we want for our students. Using this technology, learners and teachers can create an electroniccatalogue of work that tracks their learning expedition. This is usually online and often uses multimedia files. For example, a student portfolio of artwork is presented online through an e-portfolio. This includes scans of their sketches, photographs of displays and visits to galleries,written reflections, narrated videos of the artist (learner) at work and an audio logbook provides a way of quickly and seamlessly presenting a wide variety of material in different formats including details of process, data security and confidentiality.

Flipped classroom

In the flipped classroom, students complete learning normally covered in the classroom in their own time (by watching videos and/or accessing resources), and classroom time is dedicated to hands-on activities and interactive, personalized learning, leading to deeper understanding. Students use class time to apply the theory and concepts discussed in the videos, and to utilize techniques including group problem-solving and team building games, simulations, case study reviews, and group discussions. Forexample, learners watch a video at home about how a washing machine works. In class they work in groups to collaboratively create a diagram explaining the process of working of the washing machine. As flipped class rooms allow more time for activities, it provides copious understanding and contemplation.

Personal Learning Environment(PLE)

Personal Learning Environments (PLE) are next generation learning portals that allow learners to manage and control their own learning experiences. A PLE is a single user's e-learning system that allows collaboration with other users and teachers who use other PLEs and/or VLEs [3]. Personal Learning Environments include a Learning Management System (LMS), collaboration and social media

tools, analytics and measurement systems, and system filters. The aim ofsuch a network is tofacilitate an exchangeof ideas that supports learning. For example, on Twitter and/oronline and face-to-facecourses.

Virtual Learning Environment(VLE)
It isweb-based e-learning education system modelled to deliver learning-based materials to students. It provides access to courses, course content, assessments, homework, links to external resources etc. Generally, VLE users are assigned either a teacher ID or student ID. The teacher sees what students can see, but the teacher has the flexibility to modify or create curriculum content or track student performance. Some of the commercially available software packages are Blackboard, Moodle, WebCT,Lotus Learning space, COSE etc.

Interactive Whiteboards
It is an instructional tool which allows images from acomputer to be displayed through a digital projector, onto a large (usually wall-mounted) board. Userscaninteract with the content on the board using fingers or a stylus. Contents can be dragged, clicked, copied and the hand notes can be transformed to text and saved. This tool allows integration of media into the teaching learning process and supports collaborative learning. Any application that runs in the computer can be used in interactive whiteboard, interacting with it using his/her finger demonstrating the features and tools of the software to a large number of students. Some of the features are spotlight-to draw the attention of the leaners on a specific area, magnifier-enlarges a certain area of the screen, pointer-allows to highlight key areas, screen capture-allows to capture images of the screen etc.

Virtual Reality / Augmented Reality (VR/AR)
The technological revolution has been permitting the use of new approaches in the teaching-learning process. One of the conductive technologies to the building of innovative tools for the education is the Virtual reality, which offers tridimensional computer environments with advanced forms of interaction that can provide more motivation to the learning process [4]. VR worlds can be used to circumvent the factors that prevent the institutions for providing learning by doing environment. For example, for a student studying chemical engineering, to understand the process happening in a operating chemical plant, virtual reality can aid to understand the underlying process [5].

CONCLUSION
Digital learning is increasingly influencing classroom teaching and learning but more importantly it is leading to new models or designs for teaching and learning. There is increasing pressure from employers, the business community, learners themselves, and also from a significant number of educators, for learners to develop the type of knowledge and the kinds of skills that they will need in a digital age.
With the aid of new age digital tools and technologies, the knowledge and skills developed in a digital age thus produces graduates with expertise in knowledge, inter-personal communication skills, lifelong learning skills, collaborative learning and teamwork, intellectual skills, including reasoning, problem solving, creativity etc.

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