Innovative use of Information and Communications Technology tools in Education Innovation

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Abstract

The purpose of this article is to discuss the innovative use of Information and communications technology (ICT) tools in teaching and learning. Various tools of ICT can act as facilitators of active learning and higher order thinking. The integration of information and communication technologies can help in revitalizing teachers and students. It can help in improving and developing the quality of education, by providing support in difficult subject areas. Teachers generate meaningful and engaging learning experiences for their students by strategically using ICTs the learners enjoy learning. Students and teachers can learn to practice various ICT skills. Using ICT tools in the teaching-learning process can be used extensively. It is a fact that present teachers have no other option but to adopt technology as these tools in the field of education. Hence a teacher can be called a "Teaching Technician". The process of learning and teaching can be made easy and effective by the use of various ICT tools.

Keywords: ICT, teaching-learning, technician, education.

Introduction

Education involves teaching and learning specific skills, and some less tangible but more profound; Providing wisdom, positive judgment and well-developed knowledge. Culture as one of the fundamental aspects of education is to be imparted from generation to generation. Education is meant to "facilitate the realization of one's self-potential and talent. It is an application of pedagogy, and technology is constantly changing our relationship with information. Changing global conditions demand that we rethink it." Do what we learn and teach, but more importantly, how and where we learn. We need education for the 21st century.

Academic innovations are the epitome of excellence in the pursuit of quality in educational experiences. This specific term is associated with the creation and innovation of new and unique ideas in instructional techniques that promote learning in more effective and exciting ways. There are seven concepts of pedagogical innovation which have different qualities such as innovation, change, application and improvement, technical pedagogy, reflection and human response. Educational innovations have different characteristics, which make it unique. Pedagogical innovations are related to the pressure to standardize educational principles and pedagogical initiatives. These are symbols of quality enhancement and help in improving the quality of education. It ensures equality of opportunities.
for pursuing higher education in the global scenario. Educational innovations initiate academic growth and excellence.

Pedagogical innovations encourage a vibrant approach to teaching as well as to learning while creativity and innovation. Pedagogical innovations are related to innovations in pedagogical decisions, pedagogical practices and pedagogical knowledge. Innovations are basically associated with pure science and technology. But in pedagogical context, it has many forms and is also called educational innovation. Technology supports educational innovations in a better way. There is always a need for innovation in educational innovations. Pedagogical innovation involves teaching-learning in new ways so as to provide quality and effective education which helps the students to learn. Achieving learning outcomes such as using emerging technology also implies pedagogical innovations. It simply means that the innovation (in any form) a teacher makes in his/her classroom or learning environment that makes learning easier for students. Educational innovation involves the introduction of a new idea or object or method into teaching by the teacher and a "successful" change or result those results in the adoption of that new approach that makes the task of effective learning-teaching successful.

Information and communication technology is the type of technology that is employed in the shape of devices, equipment and application support that helps in the collection, storage, retrieval use, transmission, manipulation and dissemination of information with the aim of enriching the information as much as possible to be transmitted accurately and efficiently. To develop knowledge and communication, decision making as well as the user's problem-solving ability. The information technology revolution has affected every aspect of our lives. Like any other field, technology has brought about radical changes in the lives of teachers and students. Nowadays it is impossible for a teacher to stay away from the impact of information technology in education. In fact, a teacher can empower herself and her students by using educational innovations through techniques in the classroom. In this technocratic environment, technology has taken the lead and students have access to the world's best resources at a single click. Technology enabled innovations in education have had a significant impact on the pedagogy of 21st century education. Modern trends in the form of online courses, e-learning techniques, social networking tools and other emerging technologies are becoming popular among the students and the younger generation and are leading to technology enabled educational innovation with full access to information communication technology. A variety of digital tools and technologies are available for creating pedagogical designs and planning instructional exercises for outstanding learning experiences. Here we will discuss some of the ICT tools that can be useful in this regard:

**Virtual Learning Tools**

Learning Management System: Learning Management System as a Virtual Learning Environment Tool is a software application used to deliver and manage e-content information of videos, texts etc. The main features of this LMS are rubrics, teacher and student roles, a discussion, educational resources. Some examples are: Moodle, Course Builder, Google Classroom, Addonmodo, etc.

- **Lecture Capture:** Lecture Capture is an excellent tool in virtual learning environment for taking lectures out of the classroom for flipped classroom learning. The Lecture Capture tool allows instructors to create recordings of classroom lectures or presentations, including audio, video and screen material, and share them online and with students. Some examples of this are Screencastify, Screencast-o-matic, CamStudio, Webinaria, Panopato, Presentation Tube, etc.

- **Webinars:** Webinars are a web-based seminar. Large number of participants can participate in the webinar and be able to share documents and slides etc. In short, it is called web-based seminar in which slide
presentations, lectures are conducted through internet with video conferencing tools/software. And participants or attendees share slides and documents with everyone. Webinars can be telecast live via live streaming options like YouTube or any LMS. Examples are Go To Webinar, Animating, Zoom, Microsoft Teams.

- Interactive Web Conferencing: Web conferencing is made possible by Internet technologies, especially over TCP/IP connections. The main feature of web conferencing is that it works best for small to medium group collaboration. It is used for organizing conferences or meetings for remotely present members to share various features online collaboration including documents, data, slides, reports and videos etc. It offers high-quality, live sessions and uses interactive features such as surveys and polls, and questions and answers. Examples of this are Big Blue Button, Google Hangouts, Workplace by Facebook, Skype, G Suite, Vidyo, etc.

- Electronic Books: Electronic book is also synonymous with e-book. The main feature of an e-book is that it is in digital form and displays the features of text, images and videos in e-content form. Sites with free eBooks are: Project Utenberg, Google Books, FreeTechBooks, O'Reilly Open Books, BookBoon, WikiBooks, Free-eBooks.net, Internet Archive, etc.

- Screen sharing: Screen sharing as an adjunct to a virtual learning environment is used to share slides, presentations and documents for easy collaboration in meetings and training. Examples are Go To Meeting, DisplayNote, Mikogo, Global Meet, Skype, Zoom, Redbooth, Teamviewer, etc.

- File sharing and document management systems: In a virtual learning environment, file sharing and document management systems such as: e File Cabinet, Dropbox, Google Drive, Microsoft One Drive, File Cloud, Work Drive, etc.

Social media Tools

Technology has empowered social media, but has also accelerated social sharing and content creation. Social media tools help to enhance educational experiences in a more sophisticated way as we prepare our educational concerns and skills to meet the challenges of significant changes associated with technology-enabled educational innovations in the 21st century. Social media can be used immensely as an educational tool, where students will not only receive information from their teachers, but can also share, collaborate, reflect and apply with the wider community. The teacher is just a facilitator for the students and all the desired information that they need can easily get it from google. Social media helps to communicate and develop relationships among society for schools and institutions. When educational experiences are told in the digital story method on social media platforms, there are various tools that teachers can use to accelerate 21st century skills such as understanding, communication, creativity, collaboration, etc. Examples of the following social media tools are as follows- Facebook, Twitter, Blogger, YouTube, Instagram, Vimeo, Teacher Tube, Pinterest, Podcast, EduBlog, WhatsApp etc.

Professional Development Platforms

Professional development is the set of tools, resources and training sessions for teachers to improve their teaching quality and effectiveness. These resources allow instructors to advance their knowledge in their subject area and provide mentoring and the opportunity to learn new teaching techniques.
The use of ICT not only strengthens the existing academic field, but also fills teachers with new professional knowledge. ICT provides lifelong professional development by providing courses, training, orientation and refresher courses in a virtual situation through video conferencing and online.

Continuing and continuing education is the key to success for further professional development. Professional development platforms are essential and provide opportunities to explore new knowledge, latest trends and contemporary issues that connect with learning communities through technologies. Teachers can gain the best of knowledge through professional development platforms and become popular by acquiring specialized training, accredited courses and advanced skills to improve and enhance professional knowledge, competence, skills and effectiveness. Some examples are as follows- SWAYAM, DIKSHA, Online FDP & Workshop, Arpit Course, etc.

**Digital Resources for Teaching and Learning:**

Digital resources can be used immensely in a variety of ways to support teaching and learning. Electronic grade books, digital portfolios, learning games, and real-time feedback on teacher and student performance can be used to empower learning. Digital technology or e-learning technology has given rise to various tools that teachers can use to enhance the learning experiences of students both within the classroom and outside the classroom. Here are some examples of digital resources to aid teaching and learning.

Presentation Program: It is a software package used to display or display information in the form of slide shows or videos. Basically, it has three main features as Text Editor, Graphic Images, Music Tune which support teaching-learning resources in an excellent manner. Examples of these are: Powerpoint, Prezi, SlideShare, Keynote, Powtoon, Adobe Spark.

Using YouTube videos in teaching and learning: Using videos for educational experiences, research showed that students preserve maximum information, grasp concepts more easily. By using YouTube videos as educational resources, we can explore new relationships between curriculum subjects and the world outside the classroom.

Storyboard: A storyboard is a graphic organizer for the purpose of pre-visualizing illustrations, animation, motion graphics, or interactive media sequences in the form of pictures or images displayed in sequence. It is also called pictorial framework for making videos. It consists of a series of thumbnail images that tell the whole story from beginning to end. There is also a written script about what is happening in each frame. When it's finished, the storyboard looks like a comic strip. Storyboards can be simple or complex. Its hand drawn, but we can use storyboard software to create images to make videos. A storyboard is similar to a script, but the two are not exactly the same - storyboards are visual, while scripts are text-based. The tools for Storyboard are: Board, Plot, Storyboarder, etc.

**Conclusion**

The major thrust of pedagogy in the 21st century is to create self-directed learners and mobilize the talents and hidden potentials of each individual with ICT supported pedagogical innovations. It is the need of the hour that we should rethink about education and educational experiences. Also, we need dynamic learners in 21st century pedagogy using ICT tools. With innovative ideas for 21st century education, teachers and policy makers will have to make extensive use of ICT tools in education to bring about the desired results. Teachers also need to acquire proficiency in the use of ICT tools, so as to be successful in meeting the needs of the students of the 21st century. Therefore, we can say that the use of ICT has great potential to prepare the students to face the various challenges.
and responsibility they carry. Therefore, teachers have to realize that if the students are to attain higher level of competency, then they have no other option but to adopt technology as an integrated ICT tools in the field of education.

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