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Innovative technologies in higher education

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Abstract

As technology advances and the job market become more competitive, what it means to receive “a good education” is changing rapidly. A number of colleges and universities have quickly adapted to the change and are preparing students for the jobs of tomorrow. The fields of studies offered at these innovative universities are expanding to include: artificial intelligence, new media, engineering, bioscience, and even food innovation, Open online Courses, Hybrid and flipped classrooms.

Keywords: Digitization, Higher Education

Introduction

Present education scenario is greatly influenced and highly driven by technology. The technical advancement in the field has transformed the learning system at its core. When technology was evolving in education, the innovations embraced its evolution. For several years now, educational technologies have impacted how students, corporate, and business professionals want to learn. Technologies like virtual classroom, mobile devices, digital readers, on-demand video, online courses, and cloud-based LMS are continuously catering the market, and constantly thriving for innovation. Established educational tech. companies, entrepreneurs, and educational institutes are identifying the possibility to leverage the innovative products beyond the boundaries and designing tools that quench millennial demands.

Innovative Technologies

MOOCs

A Massive Open Online Course (MOOC) is a web-based platform which provides unlimited number of students worldwide with a chance of distance education with the best institutes in the world. It was established back in 2008 and gained momentum in 2012 as a popular learning tool. Many MOOCs have communities that have interactive sessions and forums between the student, professors and Teaching Assistants (TAs) along with the study/course material and video lectures. Early MOOCs often emphasized open-access features, such as open licensing of content, structure and learning goals, to promote the reuse and remixing of resources. Some later MOOCs use closed licenses for their course materials while maintaining free access for students. MOOCs are of two types "cMOOC" and "xMOOC". cMOOCs are based on principles from connectivist pedagogy indicating that material should be *aggregated* (rather than pre-selected), *remixable*, *re-purposable*, and *feeding forward* (i.e. evolving materials should be targeted at future learning. cMOOC instructional design approaches attempt to connect learners to each other to answer questions or collaborate on joint projects. This may include emphasizing collaborative development of the MOOC. xMOOCs have a much more traditional course structure. They are characterized by a specified aim of completing the course obtaining certain knowledge certification of the subject matter. They are presented typically with a clearly specified syllabus of recorded

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lectures and self-test problems.

MOOCs program in India

The University Grants Commission (UGC) along with the HRD (Human Resource Development) Ministry has launched the MOOC program in India for higher secondary, bachelors and masters degrees. This will cover a wide range of subjects that may or may not be taught in regular campus studies. A new portal for MOOCs named 'Study Webs of Active-Learning for Young Aspiring Minds', in short, SWAYAM, is said to present students with an opportunity to study anything from a list of 2000 courses out of which 200 are currently available for registration. Audio-visual medium, illustrations, research and case studies with self-assessment are few of the mediums chosen to approach the study of these courses.

Learning Management systems (LMS)

LMS is the platform that delivers several education courses in an organized way with the help of computer programs. The system is utilized by various educational bodies with diversified customer base both online and offline. And this educational ecosystem is a primary target for tech companies striving for innovation. NIIT's Cloud Campus and NIIT.tv are the finest examples of LMS, which is enabling thousands of learners across the nation to pursue online certificate course anytime, anywhere.

Teaching Assistance

The technology for teaching assistance is deliberately open for innovation. Lectures of teachers from across the globe are streaming on various video platforms. With the advent of chat bots, real-time assistance, and extensive support system the popularity of teaching assistance methods has ramp-up in no time. With innovative approaches of educational technology companies towards assistance tools, the transformation of teaching methods and teachers is certain. The traditional teacher will soon be a leader, facilitators, and innovator equipped with real world skills.

Enhanced Use of Virtual Reality

Virtual reality is completely a new way to access the education as a real-world object. The tech leaders like Google, Samsung and HTC are investing massively in developing education application for VR technology. By incorporating virtual reality in education system, the students can get a better and detailed understanding of the content and complex data can be resolved into simple modules.

Virtual reality brings imagination to real life for students. In 2015, Google launched the 'Expeditions Pioneer Program' that has already allowed over 1 million students from 11 countries to explore virtual world using Google Cardboard.

Flipped Classroom

While not a technology per se, this teaching model is using technology to change the way instructors teach. Rather than spending the class time lecturing the students, the lectures are delivered to the student's in video format for them to watch at home (or in study hall).

Then, the classroom time is set aside for 1 on 1 help, discussion, and interaction based on the lecture homework. With nearly every student carrying a mobile device or laptop, this model may give students and teachers more time

to work on areas of difficulty rather than simple straight lecture. For too long, instructors have seen that precious class time go to waste while a teacher scribbles on a blackboard and has their back to the students.

Hybrid Learning

Hybrid should not mean lecture in class and send the students home to read a textbook and do online assignments. The best hybrid instruction allows the students to interact with content and engage in learning activities before, during, and after the face-to-face class. Oftentimes, students can interact with content independently or asynchronously online while collaborating and applying key concepts within the synchronous classroom. A flipped classroom model can be used as a means of balancing or blending the online and face-to-face learning environments.

Flashnotes

Remember the days of doodling on the side of your spiral notebook while you tried to take copious notes from your boring biology teacher? Would you be more motivated if you knew that your notes would not only give you an edge on the exam, but could also earn you a bit of cash?

Flashnotes allows students to upload their lecture notes and sell them to other students who need more help or resources. The rating system allows the best note takers to get more business and the general pool of knowledge expands as students continue to share their work with one another.

Computer-assisted instruction

Computer-assisted instruction allows teachers to spend more time with individual students who are having difficulties. Meanwhile, other students in the class can work through their lessons at their own pace. This improves classroom efficiency and allows for one-on-one attention in larger classrooms.

Websites and social media

A commonly overlooked trend in education technology is the use of websites and social media. Students, teachers and parents are all connected through social media and the Web. This allows parents and teachers to maintain communication about classroom events and assignments.

Some teachers have used these technologies to create a homework blog, a classroom website or student blogs. Another innovative use of social media and the Web is the creation of education-related Pinterest boards. Each of these technologies opens up the classroom a little and facilitates communication between students, educators, parents and the broader community.

Innovation Sandbox (Cal Poly San Luis Obispo University)

Cal Poly's Innovation Sandbox is a shared workspace that allows students to "play" with the latest prototyping/ideation tools, explore new subjects, develop technologies, and share knowledge.

The space is equipped with state-of-the-art equipment, educational programs, and student mentors from all disciplines. Students are encouraged to use the Innovation Sandbox to not only apply what they've learned in the classroom, but to collaborate with others to develop their own theories, experiments, and projects.

Mixed Reality (University of Southern California)

Mixed Reality (MxR) is part of the USC Institute for Creative Technologies. The project explores techniques and technologies to improve the fluency of human-computer interactions. Their current prototypes focus on immersive systems for education and training simulations that incorporate both real and virtual elements.

Social Innovation Lab (Babson College)

The Social Innovation Lab at Babson connects people and ideas in order to prototype, evaluate, and prove new social innovation in real-world contexts. It's the hub of a global, interdisciplinary community that is dedicated to building a better world.

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