Rethinking the Teaching-Learning Process : The 21st Century Digital Learner

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Abstract

In the present scenario technology in education is a very much important and challenging concept. The new ways of teaching are learning through E- Content, through Moodle or by MOOCs, E-learning, online Education, Artificial Intelligence(AI), Learning through Government Channel and Private Channels and Learning through apps. Undoubtedly there so many benefits but there are some demerits of this mode of education, as students are facing stress and immense tension. So for their Emotional well being , school should deploy a counsellor to deal with such problems and each teacher should listen and deal with such problems. The present paper focusses on the technological advancements in education in the 21st century.

Keywords: technology, education, e-content, emotional well being, MOOC

Introduction

In the present scenario technology in education is a very much important and challenging concept. The new ways of teaching are learning through E- Content, through Moodle or by MOOCs, E-learning, online Education, Learning through Government Channel and Private Channels and Learning through apps.

Background and why this study is essential(Importance)

We know that specially in the these times of Covid-19 pandemic has capacity to transfer & spread rapidly from human to human.

Limitation and Methodology

In this study, we will search on the official websites of IGNOU, Jadavpur University, MU and other university and colleges, brochures of universities, to know the ways and methods which these institutes are adopting. We will also search websites of ICT technology, website of modern technology to search various softwares and other content and methods for online teaching or E-learning etc. We will also study the books of different educational technology to know the ways & methods of teaching learning and softwares, suitable under such pandemic Open Broadcaster Software (OBS) etc. which are widely used in various countries for online teaching–learning process. We will study the various methods which are being adopted in whole world for teaching –learning process.

In this context the Survey methods has been used with the help of Google Forms.

Discussions

We shall discuss about following methods which are being adopted for teaching-learning process-
1. Teaching- learning process through E- Content
2. Teaching- learning process through MOOCs
3. Teaching- learning process through Moodles
4. Teaching- learning process through E-learning
5. Teaching- learning process through Education Television
6. Online Education on Community Apps or Conference Apps
7. Emotional Well Being efforts
8. Distance Education

1. **Learning Through E-Content:** Electronic Content Or Digital Content which is also refers to the content or information delivered over network based electronic devices or that is made available using computer network such as internet.

E- Content Development: This course on **E-content development** is meant to understand the meaning and standards of **E- content**, learning objects, designing and **development** of digital

resources for teaching and learning.

Creating e-content

The development of E content can be described in following steps:

1.   **Introduce course design and objectives:** The teachers are experts enough to develop the subject content. They should have objectives and subject-matter as they have enough knowledge in their area of expertise. They should also have course-design, syllabus/course and unit bifurcation with detailed topics. If objectives, syllabus and the course design are shared in well advance, then we teachers can develop e-content.

2.   **Training of developing E-content or Mutual sharing of good e-content:** Generally many a teachers are not having any training or not having e-learning background but have vast experience, both intellectual and practical in a particular field or subject. Training of such teachers or sharing examples of e-content with them will expose them to the requirements of learning. This will help them align their thoughts and let the right information flow.

3.   **Ask relevant questions/fragment the topic with many a points but in a sequence:** First of all teachers should fragment the topic into many a points and make a sequence. They should know 'what' to ask and understand the answers better. Once the sequence of points/questions is ready, sequence them as per the design of the course. Then we have completed half preparation of designing E-content.

4.   **Use only those pattern or software which the teacher is using usually:** Mostly the teachers are habitual with MS-PowerPoint, MS-word. Only for a few times, they use Graphs/ Pie-Diagram developed on Excel spreadsheets. So for their ease, they should be suggested to use formats or software with which they feel comfortable. These formats can quickly be transformed into SCORM complaint e-learning using rapid authoring tools. Formats can be created in PPT or Word for the teachers to fill in.

5.   **Involve multiple diagrams and graphs:** In order to explain some most difficult or easy subject –content or to conduct activities, teachers should include a lot of diagrams and graphs to illustrate learning. The diagrams make e-learning 'friendly' with the use of tools like annotations etc. Since the basic idea of the diagram makes teaching very easy and comfortable and proves to be a good learning tool.

6.   **Encourage use of audio:** Only text cannot be proved to be decipherable or able to be understand in absence of audio should not only be played with text bit it should be in enough quantity afterwards which should explain each and every content.

7.   **Utilizing existing material:** Many teachers have a lot of existing material on their subject. Usually they have enough material in formats like MS PowerPoint or MS Word. We know that these format can be transformed into e-learning quickly. So these readymade materials should be transferred first in e-content.

(Sources-https://swayam.gov.in/nd2_ntr20_ed11/preview,accessed on 9 August2020)

(https://elearningindustry.com/elearning-content-development- process-steps Accessed on 9 August2020)

Type of E-Content

1.   **PowerPoint presentations:** E-content may be in form of slides of MS-PowerPoint also which one by one develop the subject in a sequence in nearly equal segments.

2.   **White papers:** When complex topics or issues need to be included in your training, whitepapers are an excellent option. Depending on the topic, it may be hard to find a whitepaper specific to your needs, but if you can find one then they're great resources with well-sourced information.

3.   **Charts/graphs:** The chart and graphs sometimes used to elucidate and elaborate the topic and sometimes we just inform or develop the topic with only graphs and charts .

4.   **Webinars:** When in-person training isn't possible, webinars can be a great

substitute as on Google Platform or on Zoom. These webinar also include presentations or a combination of a presentations and multiple.

5.   **Podcasts:** Podcasts are picking up in popularity which means the variety of information and topics covered on them is better than ever. For example, we were able to find a few E-learning Podcast.

6.   **Slide shares:** slides or presentation is the most popular mode of developing e-content.

7.   **Cartoons/illustrations:** The cartoons and illustrations are used to elaborate the topic and to illustrate the topic.

8.   **Videos:** These are easy to explain any scientific process, geographical events, Historical happenings etc.

9.   **Case studies:** In case of any specific cases, extraordinary case, problematic case, we study the case specifically and try to find out each and every information. In this way, we collect various information in form of case study.

10. **Info graphics:** Images and statistics all rolled up into one piece of jam-packed information. There's a reason info graphics are so popular and it's because they make learning information so easy (when done right).

11. **Problem-solution:** we want to solve a specific type of problems and we conduct a seminar or an interview in which at first we collect the variety of those problems and conduct an interview and develop/present that interview in form of e-content.

12.   **Simulations:** A simulation is the re-creation of a real world process in a controlled environment. It uses something called modelling to figure out the result of the simulation. A model is a representation of an object or process that describes and explains that phenomenon when it can't be experienced directly. In science, we come up with lots of rules and laws to describe the world, and those models together allow us to create simulations.

E-content package E-content package can be used as teacher in the virtual classroom situation. Using E-content, the time and finance involved in the teaching process can be minimized. E-content is facilitating individualized instruction. **(https://adespresso.com/blog/main-different-types-content-use, Accssesd on 09 August2020)**

Learning Through Moodle

The acronym *Moodle* stands for *Modular Object-Oriented Dynamic Learning Environment.* It was developed by **Martin Dougiamas** to help educators create online with a focus.

Moodle is a free and open source learning management system. It is used for Blended Learning, Distance Education, Flipped Classroom and other E-learning projects in schools, college and Universities. It is used to create Websites with online courses for educators and teachers to achieve learning Goals.

Moodle as a learning platform can enhance existing learning environments as an e-learning tool, Moodle has a wide range of standard and innovative features such as a calendar and a grade book. It is a leading virtual learning environment and can be used in many types of environment such as education, training and development and in business purposes.

Pedagogical approach: The stated philosophy of Moodle includes a constructivist and social constructionist approach to education, emphasizing that learners (and not just teachers) can contribute to the educational experience. Using these pedagogical

principles, moodle provides an environment for learning communities.
(https://moodle.org/, Accessed on 09 July2020)
(https://moodle.com/, Accessed on 09 July2020)

Learning Through Massive Open Online Courses (MOOCs)

Massive Open Online Courses (MOOCs) are free Online Courses. MOOCs provide an easy, affordable means to learn new skills, to progress in career. It is an interactive courses with many a formats or social media discussions to support community interactions among students, teachers and professors with immediate feedback, quizzes and assignments.

MOOCs are a recent and a widely researched development in distance education. For the first time these were developed in 2008.

These are used for a variety of reasons, including career development, changing career, supplementary preparations etc.

(https://www.mooc.org/accessed on 09 july2020)

(https://www.classcentral.com/help/moocsaceessed on 09 August2020)

Learning Through E-Learning

E-Learning is learning utilizing electronic technologies to access educational curriculum outside of a traditional classroom. In most cases, it refers to a course, program or degree delivered completely online. Online means via the internet, ranging from Distance Education, to computerized electronic learning, online learning, internet learning and many others. E-Learning is courses that are specifically delivered via the internet to somewhere other than the classroom where the professor is teaching. It is not a course delivered via a DVD or CD-ROM, video tape or over a television channel. It is interactive in that one can also communicate with one's teachers, professors or other students in one's class. Sometimes it is delivered live; where one can "electronically" raise your hand and interact in real time and sometimes it is a lecture that has been pre-recorded. There is always a teacher or professor interacting / communicating with you and grading your participation, your assignments and your tests. E-Learning has been proven to be a successful method of training and education is becoming a way of life for many citizens in North Carolina.

Actually Elliott Maisie coined the term "eLearning" in 1999, marking the first time the phrase was used professionally. In the years since, e-Learning's reputation has gone from strength to strength.

(http://www.elearningnc.gov/about_elearning/what_is_elearning, Accessed on 09 August2020)

Learning through Education Channels

Education Channels or Educational Television is the use of television programs in the field of distance education. It may be in the form of individual television programmes or dedicated specialty channels that are often associated with cable television as Public, Educational And Government Access Channel Providers.

Many a series on television are educational. Some of them may be dedicated but some are to indirectly teach students or viewers. Some dedicated channels, swayam prabha, MHRD Youtube channels, IGNOU and E- Gyankosh.

Swayam Prabha is a bouquet of channels offered by the HRD ministry. They offer open course learning to students in schools and colleges. Following the move, a student anywhere in India can request the DTH 'Service Provider' for these channels without any extra cost as these are free to air channels, the ministry said. "Learners can continue their education and learning sitting at home in this difficult situation due to unfortunate outbreak of covid-19," HRD minister Ramesh Pokhriyal said. These channels providing educational curriculum-based course contents covering arts, science, commerce, performing arts, social sciences and humanities subjects, engineering, technology, law, medicine, agriculture.

These channels, according to the ministry, will offer six hours of recorded content on

four different subjects daily with the option for students to ask questions via dedicated phone lines. The ministry also said its online platforms, including the Swayam platform, have seen five times more visitors in last the fortnight following the preventive lockdown in place since 25 March.

We can describe the channel of Swyam Prabha Chaanel as an excellent example. The SWAYAM PRABHA is a group of 32 DTH channels devoted to telecasting of high-quality educational programmes on 24X7 basis using the GSAT-15 satellite. Every day, there will be new content for at least (4) hours which would be repeated 5 more times in a day, allowing the students to choose the time of their convenience. The channels are uplinked from BISAG, Gandhinagar. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal. (www.swayamprabha.gov.in (official website of Swayamprabha channels, Accessed on 29 July 2020)

The DTH Channels shall cover the following

(a)   **Higher Education:** Curriculum-based course contents at post-graduate and under-graduate level covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture, etc. All courses would be certification- ready in their detailed offering through SWAYAM, the platform being developed for offering MOOCs courses.

(b)   **School Education (9-12 Levels):** Modules for teacher's training as well as teaching and learning aids for children of India to help them understand the subjects better and also help them in preparing for competitive examinations for admissions to professional degree programmes.

(c)   Curriculum-based courses that can meet the needs of life- long learners of Indian citizens in India and abroad.

(d)   Assist students (class 11th & 12th) prepare for competitive exams.

DIKSHA will serve as National Digital Infrastructure for Teachers. All teachers across nation will be equipped with advanced digital technology.

Diksha portal will enable, accelerate and amplify solutions in realm of teacher education. It will aid teachers to learn and train themselves for which assessment resources will be available. It will help teachers to create training content, profile, in-class resources, assessment aids, news and announcement and connect with teacher community

DIKSHA is a unique initiative which leverages existing highly scalable and flexible digital infrastructures, while keeping teachers at the center. It is built considering the whole teacher's life cycle - from the time student teachers enroll in Teacher Education Institutes (TEIs) to after they retire as teachers.

In India, many teachers are creating & using innovative tech- based solutions in their classrooms. Some state governments have also initiated programs to support their teachers digitally. This inspired MHRD and NCTE to coordinate these efforts at a national level and build DIKSHA.

States, government bodies and even private organisations, can integrate DIKSHA into their respective teacher initiatives based on their goals, needs and capabilities. They can use DIKSHA's features to create:

● In-class resources
● Teacher training content
● Assessment aids
● Teacher profile
● News and announcement
● Teacher community

These features have emerged from consultations with multiple state governments, NGOs and more than 30 public and private organisations, who have collaborated in contributing to DIKSHA.

Shiksha House is an Education related Channel to teach CBSE, ICSE, NCERT and state board lessons. *Shiksha* Houase uploads videos of all Subjects of Higher secondary Education. *shiksha House* teach through very interesting, easy to understandable Animated Video Lessons.
(www. shikshahouse.in (official website of shikshahouse, Accessed on 29 July 2020)

Online Education by Trained Teachers

Online education by trained teachers through apps may also be promoted. Various apps like Google classroom, Google meet, Google Hangouts, Webex, Bigbluebutton, Life size cloud, Zoom, Virtual classroom, Diksha, Shikshahouse, Facebook live and Whatsapp etc.

Some details about various apps are as below-

Google class room is a very good app to manage assignments, give content and evaluate the assignment of children. You can make your own video on a topic and share it with children. You can even share the links of content available. No extra occupation of phone memory. It works through google drive.

Google duo: It is good app of google which gives group video call facilility, the drawback is that you can have only 10 people in a video chat. So for clearing doubts of students it can be used oogle meet is a very good platform for video conferencing with 100+ people but, it require google suit account, which is not easily made for common teachers until they have a website if their own.

Google hangout can cater conferencing with 15 people at a time. Bigbluebutton is good open browser conferencing and teaching platform. You can add 50 students at a time. You can create separate class rooms. No permission to access you personal data, uses only your personal webcam and microphone. Provides whiteboard option for writing, Diksha, swayamprabha and shiksha house are govt run portals for online learning. Content is uploaded by their ream which can be accessed by the students.

Microsoft Teams focuses mostly on quick and easy chat, although it has a range of other features to make conversations through audio and video easier too. Teams' calling solution for business phone is still lacking a few features at this point.

We can use all the above media and ways of online education or E-learning in this lockdown period keeping social distance. The biggest advantage to studying online is the increase in flexibility. It has flexibility when, how and where they study. Because of flexibility, online education is very popular with mature-age students who have other commitments, such as work or children.

As per website https://www.shiksha.com/university/jnu- jawaharlal-nehru-university-delhi-4225 Accessed on 10 August2020, JNU is using online media for imparting education and for conducting exam.

As per website http://www.amucontrollerexams.com/ Accessed on 10 August2020, AMU is accepting online application for admission, application for revaluation of answer copies etc. It is conducting Web talk series on Gandhian talk and Philosophy.

As per IGNOU official website it invites application online, has conducted many a webinars through study centre, has conducted online counselling session.

Artificial Intelligence and Teacher Education

Artificial Intelligence(AI) has already been applied to education primarily in some tools that help develop skills and testing systems. As AI educational solutions continue to mature, the hope is that AI can help fill needs gaps in learning and teaching and allow schools and teachers to do more than ever before. AI can drive efficiency, personalization and streamline admin tasks to allow teachers the time and freedom to provide understanding and adaptability—uniquely human capabilities where machines would struggle. By leveraging the best attributes of machines and teachers, the vision for AI in education is one where they work together for the best outcome for students. Since the students of today will need to work in a future where AI is the reality, it's important that our educational institutions expose students to and use the technology.

Some Other Benefits of Online Education are as below:

It is very easy to access to online Education and that is without being physically present at venue.

We just need to study online is a computer with internet access. All the study materials, lectures and assignments are sent to you via email or some kind of file transfer system. Even your correspondence with lecturers is wired, with email and video calls via Skype widely used or any other app facilitating video conferencing.

Secondly, Online education is not very expensive but it is truly affordable. Studying online

dodges many financial bullets that regular students have to bear the blunt of. Transports

costs can add up to hundreds per week and textbooks can set you back thousands of rupees per year/ semester. The student who studies online has to pay a set annual fee which is less than the formal schooling.

No commuting/travelling time to a campus

No geographic location constraint in selecting the learning option(s)

No learning pace constraint, you can learn at your pace and study at your

convenience

No verbally expressing constraint, you can express yourself in writing rather than verbally

You can have virtual discussion rather instructor-led lecture

Course work and instructions can highly be customized to your field and subject area

High quality dialog: Learner is able to carefully reflect his/ her quality   thinking on each comment from others before responding or moving on to the next topic.

Student   centred: Students   are   expected   to   read   all   of   their   classmates' contributions, but they may actively engaged only in those parts of the   contribution most relevant to their needs.

Access to Resources: It is easy to include guest experts or students from other institutions as well as access to resources and information around the world.

But the Online Education Brings some Black Papers or Disadvantages as below:

1.   Many a student complaints of headache, Memory loss and dizziness.

       Sometimes they come under the pressure and tension due to continuous study.

2.   Many firms and institutions are quick to dismiss an online education. If two candidates are interviewed who are exactly in the same in every respect, except one studied at a conventional university and the other studied online, in many cases the student who studied online will miss out. Until online education becomes more commonplace and accepted in society, reputation remains a definite disadvantage.

3.   One of the biggest disadvantages in studying online is the lack of social interaction, which plays a key role in development of personality of the students.

4.   The internet is an emerging phenomenon; it is still in the infant stage of its development and so it should be of no surprise that there are some shortcomings to an online education. Often the problem arises of connection, voice clarity etc.

5.   **Distance Education-** when whole education including exam can be conducted from distant centres by adopting correspondence and exam also may be conducted online then such distance education may also be pursued.

6.   Emotional well being and Motivation.

●   Keep away yourself form the rumours. Always take suggestions from able medical practitioner.

●   Social distancing does not mean social isolation.

●   Reach out and check in regularly with people you care about. Make that phone call, or even video calls using Face time and Skype. Or send a text or whatsapp. Be part of social media community groups. There are also groups that screen livestream events on You tube and social media platforms.

●   Do positive creativity like making paintings, draw sketches, write stories or poems, satires, grow plants, play online sports but engage yourself with positive activities.

●   Watch positive creative Movies, plays, sometimes spiritual plays and whatever make us happy.

●   Keep yourself aware and keep safe and confident.

Result and Conclusion

After searching numerous websites, we found that numerous webinars are being conducted on Google Meet App, Zoom App, face book and YouTube etc. Many a universities are now having initiate online education. Kendriya Vidyalaya in conducting online teaching on Google Meet. They are also utilised E-content. It is also using Diksha app, MoOcs and Swyam Portal etc., for classes 8 to 12. Now Public school are adopting these methods for online teaching-learning process.

The methods being adopted by these universities, colleges and schools have been described as above.

Undoubtedly there so many benefits but there are some demerits of this mode of education, as students are facing stress and immense tension. So for their Emotional well being , school should deploy a counsellor to deal with such problems and each teacher should listen and deal with such problems.

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