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## **Reshaping Education: Teaching and learning powered by ICT**

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### **Abstract**

The inclusive character of Information Communication Technology and the convenience they provide to access the Internet has presented an opportunity and demand for online teaching and learning, during the pandemic. Recently, in India, owing to COVID-19, web-based education is rapidly making way into our education system. This paper attempts to explore the benefit of online education and also inspects the potential as well as challenges of the web-based teaching and learning. The paper will also attempt to discuss issues regarding the potential of teaching and learning particularly when blended with affordable technology.

**Keywords:** Reshaping, Communication, Opportunity, pandemic

### **Introduction**

Online education which is often referred to as e-learning, takes place over the World Wide Web, using the tools of ICT and Internet. Online platforms for teaching and learning can seem different from one another. There is no single definition which can entirely describe all traits of web-based learning environments as they are not only diverse but also complex in comparison to traditional classroom teaching and learning. These web-based education platforms may be categorized based on their usage of ICT. Firstly, there is teaching and learning with no face to face interaction dependent on the tools of ICT over the Internet in a virtual learning environment, *secondly*, learning environment consisting of both, offline (classroom) and web based interaction using ICT depending on the time allotted for both, and lastly using ICT tools to make presentations during the traditional face to face interaction.

According to Moore & Kearsley (2011) <sup>[20]</sup>, online learning may be asynchronous, i.e., teaching and learning that does not happen at the same time *or* synchronous, i.e, teaching and learning that happen at the same time *or* a combination of both. Initially online education was synchronous deciding who becomes a part of the conversation. But in 1972, with the innovation of @ symbol for defining email addresses (Maloney-Krichmar & Abras, 2003) <sup>[21]</sup>, and also the advent of World Wide Web in 1991 for the Internet connectivity (Harasim, 2000) <sup>[13]</sup> the online education has changed. These have proved as powerful catalysts for the advancement of online teaching and learning. According to Wallace (2003), educational institutions across the world are offering not just online education but also complete online degree programs.

To put it simply, it is the popularity of ICT clubbed with the rise of high-speed Internet, which has significantly altered and impacted the lives of people in India. Today people have opportunities for doing multiple things online including business, banking transactions, shopping and chatting etc. Similarly, developments in technology have also encouraged its use for online teaching and learning in India. Online education in India has come a long way with

technological advancements. With the ever-increasing information available on the internet and the countless number of online courses people have an option of learning online as well. Seeing this potential and enormous popularity of digital penetration, our country, through the digital India initiative envisaged to change the way it functions and at the same time create opportunities for Indians by harnessing the promises of Information and Communication Technologies in the sectors of labor, employment, e-commerce, health and also education. As a part of this initiative several institutions were allowed to offer distance/correspondence education, with special focus on the use of digital technology.

Though until recently, Indian education institutions had a very limited digital environment where only blended learning took place, but due to the sudden C-19 lockdown, the educational institutions had to develop virtual classrooms right from the scratch with the help of software's developed by organizations for this purpose. These softwares along with different platforms and tools are being used by educational institutions to reach their students in a flexible manner enabling online teaching and learning.

There has been an emergent demand to create a VIRTUAL LEARNING ENVIRONMENT (VLE) in which all aspects relating to a discipline are performed consistently using an interface. Web based learning has proved itself potent more than just one way. It has proved to be the best most viable alternative to substitute classroom or face to face teaching. Those who are unable to attend regular schooling (drop outs, physically disabled etc) can seek education through online learning. Though online learning has many merits, it has not been free from criticisms and limitations.

There may a certain section of academia that have placed on record their opposition for online education stating that e-learning cannot disseminate the knowledge required for a discipline and lacks human element required for learning. On the contrary, the other section of the same academia has opposed face to face classroom teaching and learning advocating the concept of learner motivation and that

learning can be delivered to a substantial number of learners that too at the same time or at different times, particularly in nations where education is expensive and limited opportunities exist. But in the case of India which has one of the largest education systems in the world for education services to connect with the masses it is imperative to take forward the concept of electronic teaching and learning.

But as the need for online/e-learning gains momentum in India, especially during the C-19 pandemic, it has also brought into the forefront the disparities in ICT and the digital divide that exists in our country. Learners from economically weaker background, with disability, far flung areas etc, may lack the requisite infrastructure or means or both to make use of the benefits of digital learning. Moreover there is a need to ensure greater network penetration to provide fast speed network in order to provide momentum to the digital education concept. Besides this, there are greater chances of a learner to get distracted. Learners due to the lack of human element, i.e., lack of face to face interaction with teachers and classmates, may be easily distracted and lose track. Without proper motivation, there is likelihood that a learner may not complete his/her course. Also there is always a fear of enrollment into a non-accredited or recognized program. Before enrolling, one must ensure to check if the program being offered is an accredited program. One major limitation with online education, which requires immediate attention, is programs/courses that which demand lab work or field work cannot be offered. A sizeable number of learners therefore cannot use the digital platform to enroll in the programs or courses of their choices.

Institutions using digital technologies for teaching and learning are a step ahead of those following the traditional learning approach. Though the importance of traditional teaching and learning approach using books and lectures cannot be denied, but at the same time the significance and usefulness of technology mediated teaching and learning cannot go unnoticed. One of the best features of online education is that it grants learners the flexibility to learn anytime and anywhere. Online learning demands a PC/laptop/tablet/smart phone, enabled with an internet connection, learners can choose their time and place to learn. This inherent flexibility of online learning even allows the working professionals to enhance their qualifications that too without quitting their profession. As the course content along with the study material is made available online the learners can choose a time slot as per their own convenience.

Online education saves time and money. It is much more cost effective for learners who are unable to attend regular teaching programmes. Since the learner chooses his/her own time to study, online learning also saves time and allows the learner to learn at their own pace. It is a commonly known fact that all learners have a different pace at which they learn. This may be pointed out as a major limitation of our traditional educational system as in a classroom of nearly 40, who are made to learn together at the same pace, many learners find it difficult to keep up to the pace and follow what is being taught. In web based online learning the course materials is either provided in advance or is made available to the learners immediately after the session and the same time it is also stored online for future access. In case of doubts, learners can clarify them on different

platforms like chats rooms, email, groups, etc, this allows all the learners to learn at their own pace and own time.

Online education caters to learners who have faced grave difficulties with traditional education. Also it must be remembered that digital teaching and learning attracts a set of diverse learners especially those who do not have access to traditional education system or have lost faith in the system. According to Chaney (2002)<sup>[7]</sup>, online education system is to “provide quality education to all students, regardless of location and time”. He continues to elaborate that the very need for this type of flexible teaching and learning environment is for those learners who due to any inability or limitation do not wish to or cannot pursue traditional education, but seek to enhance their educational standards and create better educational and economic opportunities for themselves in future (Chaney, 2001)<sup>[7]</sup>.

It is evident that the online teaching and learning has created a place for itself in our education system and the COVID-19 pandemic has pushed schools/colleges/institutions and universities to make efforts in making online learning interactive and comparable to face to face learning. The trends of online teaching have opened new avenues and managed to create new opportunities given its potential.

### Potential

Online education may be referred to as using the tools of ICT which enable teaching and learning. Abbad *et al* (2009)<sup>[1]</sup> broadly define e-learning as electronically enabled learning. They further narrow this definition as a type of educational instruction method delivered via the internet using ICT tools. However, LaRose *et al* (1998); Keller and Cernerud, (2002) have gone a step ahead to fine tune this definition to a type of education which is web based using the internet. According to You and Kang (2014) online courses are most conducive to learners who prefer self-regulated learning. This benefit of flexibility and self-regulated learning imbedded in online education has not only made it popular but it has also been accepted as an alternative mode of education by learners. These learners largely comprise of those who desire to pursue learning while continue to be on job and those who cannot step out due to children and family. The fact that online education has the ability to liberate a learner from the obligatory requirement of being physically present and scheduling their day and routine around sessions, as a result improving educational productivity and outcomes. In this regard Christensen, Johnson, and Horn (2008)<sup>[8]</sup>; Christensen and Horn (2008)<sup>[9]</sup>; Moe and Chubb (2009)<sup>[19]</sup>; Olster (2010)<sup>[22]</sup>; Wilson (2010)<sup>[27]</sup>; Wise and Rothman (2010)<sup>[28]</sup> while highlighting the potential of web based education suggest online learning as a means for improving educational outcomes as well as expanding access at affordable cost over the traditional approaches creating opportunities for educators to concentrate on what they are good at by automating routine tasks. Though technological advancements have a much successful history in business as a productivity tool in comparison to education, but practices show and research suggests that information and communication technologies have the potential in improving productivity, in every field. Athey and Stern (2002), Atkinson and McKay (2007), Brynjolfsson and Hitt (2000) observe that the use of ICT is linked with basic changes in the organization and re-engineering procedures,

they are capable of improving productivity and gains. Therefore in order to comprehend the true potential of online learning with regard to educational outcomes and productivity, it is crucial to look at the viabilities to work smart and efficiently, through which productivity gains might be realized.

### Suggestions

A detailed review suggests several ways through which web based teaching and learning can contribute to improved productivity. Studies conducted by Buzhardt and Semb (2005)<sup>[6]</sup>, Cohen and Nachmias (2006)<sup>[10]</sup> Gordon, He, and Abdous (2009)<sup>[11]</sup>, Twigg (2003a)<sup>[24]</sup> draw attention to the fact that Institutions that use online learning enjoy significant savings while Lovett, Meyer, and Thille (2008)<sup>[16]</sup> have suggested increased rates of learning among students. Though they may not be mutually exclusive, but they suggest on the kind of tools that may be required for enhancing educational productivity. The significant contributions address improvement of access, equity, effectiveness, and cost reductions. Online education caters to the needs of those who are unable to attend regular classes, who find it difficult to be enrolled in their institution of preference, learners living in remote areas, full time/regularly employed or those who seek freedom to learn at their own independent pace. Therefore it is safe to say that online education is an alternative education system that caters for that ever-growing populace of learners who, due their reasons, don't wish to partake in traditional/regular education system. A few years back the minimum requirement for learners in order to attend online classes was access to a computer and Internet. But mobility still remained a problem. With the advent of ICT and good configuration smart phones, online teaching can be done anywhere and anytime providing an exceptional method of education liberated by the burdens of time and location. Potential learners view the web based teaching and learning environment as an opportune alternate educational method that fits perfectly into their requirements as well as their demanding schedules.

The characteristic of online education system which allows accessibility anytime from anywhere with help of a handheld device has proved to be a remarkable inducement for many learners. Being flexible for learners they provide as an apt alternative for those who face time constraints in matters with office and family. Because online teaching and learning adopts a weekly schedule for classes it allows learners to log in to your account at the best suited time for you. This option is not available in regular class format where a lecture happens at a specific time, bound by the time table. In online education learners can, download and read the course materials, participate in the discussions and complete assignments.

Those new to online teaching and learning must appreciate that the learner is provided with plenty of academic work to do for every session, but here the learner has more options for completing the work and rationing it in around their other personal and official obligation. Many learners enjoy online classes due to its sheer ability to self-pace lessons. Not all online classes are self-paced, but most of them support independent learning. Initially for online classes a learner must devote the similar number of hours as one would do for a face-to-face session, but once the learner is

comfortable it may reduce time. The learners are expected to meet the activity deadlines, some on day to day basis. For some learners the online system of education may be more demanding compared to the face-to-face regular education system, but with motivation and time management skills one can be successful as a learner or a facilitator. The online courses follow the same content as the regular classes, but with their resourcefulness and organizational skills, a learner can easily obtain success.

Though there may seem no difference but online education varies from the regular education system. The main idea in online education is to connect to the learners in a direct manner as a substitute to burdening them with lecture sessions. Unlike the face to face teaching and learning, the online education process requires the teacher and the learner to be active during sessions. This helps create an interactive environment encouraging discussions between the two. Because the learner and the facilitator don't physically meet each other the interactive ability of online teaching plays an important role for the learner. This also allows the learner the freedom to take or attend the classes at the place of their choice i.e., home, work, or on the way. The internet connection today is not a problem owing to affordable data plans that too with high speed connectivity.

The fear of isolation in the online education system is an issue that preoccupies both the teacher and the learner. But as a revelation the online system provides a greater chance of personalized contact, allowing both the learner and the facilitator, to understand each other better in terms of potential as well as requirements. Instead of being an obstruction, online teaching and learning eases the progress of communication and augments interaction in ways that would be impossible in other situations. This happens because these asynchronous, i.e., not simultaneous or concurrent in time, online courses have the potential to present opportunities for in depth discussions and specialized interactions. Both the facilitator and the learner have the prospect to directly communicate with each other. In fact, all learners enrolled can have group discussions.

### Conclusion

Online teaching and learning can play an important role in transforming the education system. The world today is on the World Wide Web learning something new every day. In the same manner online education platform has that potential to be the medium that learners require for skill development and select time and place of their choice that too at an affordable price. Overall, the advantages of online education are many and overall research also provides for the benefits that can be consequent by incorporating Information and Communication Technologies at the school as well as at higher education level (Klein and Ware, 2003; Hameed *et al.*, 2008; Wentling *et al.* 2000; Nichols, 2003)<sup>[15, 12, 26, 21]</sup>. According to Marc (2002)<sup>[18]</sup> one of the advantages of online/e-learning is its ability to focus on the needs of learners, individually. Further advantages of web based teaching and learning such as flexibility, efficiency enhancement, cost effectiveness, scarcity of staff compensation, self-paced learning etc. have been summarized by Holmes and Gardner (2006) while noting and emphasizing on the ability of online/e-learning to eradicate the boundaries of place and time and at the same time focus on the needs of such learners. Similarly Singh

(2001) is of the opinion that ICT empowered teaching and learning have the potential to improve interpersonal communication skills between the learners and instructors and among the learners themselves. It has also been pointed out in their studies by Sadler-Smith (2000) <sup>[23]</sup> and Brown, Cromby, and Standen (2001) <sup>[5]</sup> that incorporating the use of information and communication technologies into education will offer an opportunity to improve or enhance their qualifications without being stressed about time and location.

Algahtani (2011) <sup>[3]</sup> observes that the possible outcomes of online learning outweigh the benefits of traditional learning if the online teaching and learning processes are applied and made use of in a proper manner. Online learning according to Zang *et al* (2006) allows for more flexibility ways of teaching. This has further been elaborated by Brown *et al* (2008) <sup>[5]</sup> and Judail *et al* (2007) that online teaching and learning offers innovative means and ways of interacting leading to learners better understanding and participation. With the wide penetration of ICT online content are more accessible and can help increase the Gross Enrollment Ratio (GER). Online education platform provides for learning which is unobstructed by the limitations of time, cost or place, therefore having the potential to disassemble obstacles of disability, poverty, distance and many similar factors. It is therefore beneficial to embrace and welcome the digital education platform for the faculty as well as students to reap the full benefits that accompany the adoption and implementation of ICT enabled education.

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