

# From Traditional Classroom to Online Learning: ICT as Change Agent to Boost Innovation in Teaching and Learning

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## ABSTRACT

In this digital world, opportunities for education are available like never before and it is all because of advancements in the field of ICT. ICTs stand for Information and communication technologies and are defined as diverse set of technological tools and resources used to communicate, to create, disseminate, store and manage information. These technologies include computers, the internet, broadcasting technologies and telephony as well as various services and applications associated with them. Information and Communication Technologies have become one of the basic building blocks of modern society. Developments in ICTs have impacted almost all sectors of society, including the education sector. The use of Information and Communication Technologies in education sector enables the learner to learn online. Online learning has attracted considerable attention among teens and young adults who tend to connect and share common interest. It has changed the way we learn as well as how we teach. The paper explores that the integration of Information and Communication Technologies in the education sector provide new opportunities to a massive number of learners to learn online from anywhere all over the world at their own pace and place without attending the formal classroom practices. It will also discuss about the various trends and platforms of online learning and the problems associated with the effective implementation of them. Moreover, the paper points out the merits of the innovative use of online learning in higher education and it is suggested that it could be a permanent change agent that boost innovation in higher education learning arenas.

**Keywords :** Online Learning, Innovation and Integration.

## I. INTRODUCTION

Information and communication technologies (ICT) have become commonplace entities in almost all aspects of the life. It is a force that has changed many aspects of the way we live. According to **Daniels (2002)** ICTs have become within a very short time, one of the basic building blocks of modern society. The impact of the ICT on each sector across the past two-three decades has been enormous. The way these fields act today is totally different as compare to their past. Across the past twenty years the use of ICT has basically changed business, governance and off-course education!

Education is a social oriented activity and quality education has traditionally been associated with strong teachers having high degrees of personal contact with learners. Progressive development of information and communication technology during recent years has introduced a transformative shift in reading as well as

learning manners (**Lai and Ulhas, 2012**). The widespread introduction of online technologies to support teaching and learning has significantly altered the practice of teaching in many tertiary institutions (**Abrioux, 2004**). It impacts how teachers teach and students learn.

Teaching and learning is undergoing a dramatic change due to advancements in the field of information and communication technologies. It has introduced the concept of online learning which transform the learning environment to great extent. Online learning, in the context of this research, is the learning processes and interactions between students and teachers that are supported by information and communication technologies. Online learning is a web enabled learning which makes information and knowledge accessible to those who need it – anytime and anywhere. It is a method of delivering educational information via the internet instead of in a physical classroom. It is defined

as learning facilitated and supported through the utilization of information and communication technologies (viz. Internet, computer, mobile phone and video). **Singh, O' Donoghue and Worton (2005)** suggest that it provides many opportunities for students and in particular can enable them to become self-directed, independent learners and eventually lifelong learners.

Online learning is playing an important role in higher education. The traditional higher education classroom has increasingly moved from a face-to-face environment to one that is integrated, blended or even replaced by online interaction (**Lockyer & Bennett, 2006**). There is an increasing trend that online learning platforms are becoming important in teaching and learning (**Volery & Lord, 2000**). And these online learning platforms provide comprehensiveness to functions in teaching and learning. Teaching and learning in this online environment, however, involves shifts in both understanding and in behavior (**Salmon, 2005**). However, online learning is successfully used for augmenting students' learning in education sector.

## **PEDAGOGICAL FRAMEWORK FOR ONLINE LEARNING**

Online educational environment can be developed based on two schools of thought, the objectivism versus constructivism learning theories. Based on these approaches two types of learning online educational environments can be created.

- **Online learning based on Objectivism:** In these learning environments, the students by way of computer-mediated communication individually, learn by interacting with web based instructional materials stored at remote locations having minimum interaction with instructors/teachers and peers.
- **Online learning based on Constructivism:** The Computer Supported Collaborative Learning (CSCL) can be understood as an emerging phenomenon of online education that provides framework to bring the individual learners' together in a group, to achieve a shared learning by way of managing their learning process.

- **Online learning based on Eclectic Pedagogical Approach:** In this model most appropriate aspects of both constructivist and behaviorists perspectives has been used in the learning context. This approach assumes that learners will learn 50% by themselves and other 50% by collaboration with others.

## **II. TRENDS IN ONLINE LEARNING**

**1. NPTEL:** National Programme on Technology Enhanced Learning is an initiative of seven IITs (Indian Institute of Technology- Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Chennai, and Roorkee) and Indian Institute of Science, Bangalore. The programme is funded by Ministry of Human Resource Development.

The initiative is aimed at students of undergraduate engineering studying in different affiliated universities and colleges.

The network has started online courses from January 2013.

The mission of the programme is to digitize educational institutions, develop low cost and low power consuming access to ICT.

As a part of this mission The National Knowledge Network (NKN) has been launched to cover 1000 institutions to provide digital campuses, video-conference classrooms and laptops/desktops to all students of professional/science courses, and Wi-Fi connectivity in hostels.

**2. Aakash:** A low cost computing device (tablet) has been developed by IIT, Bombay called Aakash. The Aakash will be provided to 500 colleges for enhancing interactive sessions and promoting online learning environment.

**3. EDX:** The world's renowned universities Harvard and Massachusetts Institute of Technology (MIT) have jointly started offering online courses by the name of EDX.

**4. Coursera:** It is a social entrepreneurship company that partners with the top universities in the world to offer courses online for anyone to take, for free. The initiative is supported by 33 participating universities.

**5. MOOC:** Massive Open Online Course (MOOC) is an online course aimed at unlimited participation and open access via the web. MOOCs provide interactive user forums that help build a community for students, professors, and teaching assistants. There are no academic requirements for taking part in a MOOC.

However, the entire course will be delivered online, so basic computing skills and access to a computer with an Internet connection is essential.

One can enroll on any or all of the MOOCs free of charge, and all required course material will be provided for you online.

**6. MOODLE:** stand for “**Modular Object-Oriented Dynamic Learning Environment**” is an open source course management system developed by Martin Dougiamas. MOODLE is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalized learning environments. It is used by thousands of educational institutions around the world to provide an organized interface for online learning or learning over the internet.

### III. TOP FIVE ONLINE UNIVERSITIES

- Devry University Online
- Everest College Online
- Capella University Online
- Westwood College
- The University of Phoenix

### IV. INITIATIVES IN INDIA

- **IGNOU** uses radio, TV and internet technologies.
- **National Programme on Technology Enhanced Learning** uses internet and TV technologies.
- **Eklavya initiative:** Uses internet and TV to promote distance learning.
- **IIT-Kanpur** has developed ‘**Brihaspati**’, an open source e-learning platform (Virtual Class Room).

#### 1) BENEFITS OF ONLINE LEARNING

There are many advantages of online learning. Let them discuss them by categorizing into three main broad categories:

##### 1. Convenience and flexibility

- **Flexibility:** Students can access their course at anytime from anywhere. This means that parents, working students, and professionals on the move have the option of attending classes without considering their work schedule. They only need a computer and internet access to take online classes.

- **Ease of accessibility:** Students have access to their course 24x7. They can review lectures, discussions, explanations, and comments. They can also share notes with each other to help facilitate community learning.
- **Range of options:** Online learners have a numerous options when it comes to what and where they learn. Students may be able to choose a course from a wider breadth of degree programs. Even some online colleges develop and offer degree programs that might not yet be available through nearby public or private institutions.
- **Control the pace of learning:** For some people online learning suits them particularly well because they can absorb information at their own pace and examine course content more thoroughly. Online students can pause and rewind their lectures.
- **Lower stress:** This is not to say that online courses are easy and don't require hard work but it has given the flexibility of timing. With proper scheduling, you can do what you want to do, when you want to do and it when it works for you.
- **Immediate Results and Feedback:** Anyone who has graded papers knows it can get tedious, and time-consuming. Many of the most popular standardized tests, in fact, still rely on evaluation techniques that slow results. Most online learning technologies integrate online quizzes and other tools to more rapidly evaluate the pace of learning.

#### 2. Student enrichment

- **Chance for interaction:** Online courses may be less intimidating than the brick-and-mortar classroom setting, and could help to increase student interaction. By allowing everyone to have a voice, shared ideas grow diverse as well. Students can also think longer about what they want to say and add their comments when ready. In a traditional classroom, the conversation could have moved past the point where the student may be willing to comment.
- **Online communications:** Instructors can be more approachable in the online setting. Students may feel more comfortable talking openly with

their teachers through online chats, e-mails, and newsgroup discussions rather than face-to-face.

- **Better Retention:** With clever design, user experience, and multimedia, online instruction can prove to be a richer and more effective learning experience than traditional methods and channels of teaching.
- **Richer class discussion:** The students with less confidence than their peers are typically more inclined to join a discussion when they're not physically standing in front of a room full of people.
- **Accommodates different learning styles:** Online education accommodates different learning styles. A lecturer will often provide both a visual and audio description, to satisfy both visual and auditory learners.
- **Learn from a diverse group of instructors and students:** Online class may span multiple states, countries or continents and be filled by people who inspire you. This means that as an online student, you will encounter a rich diversity of views held by people from completely different walks of life.

### 3. Cost-effective choices

- **Money saving option:** Students may be able to save money by not having to attend the classes physically. Online courses may help individuals cut down or eliminate costs of transportation, babysitting, and other expenses incurred by attending classes in a traditional setting.
- **No more expensive textbooks:** Some web-based classes may not require physical textbooks, as reading materials may be available either through the school's own library or their partnerships with e-libraries and other digital publishers.

## V. PROBLEMS RELATED WITH ONLINE LEARNING

While online programs have significant strengths and offer unprecedented accessibility to quality education, there are weaknesses inherent in the use of this medium that can pose potential threats to the success of any online program. These problems fall into five main categories:

### 1. The Technology

2. The Students
3. The Facilitator
4. The Administration and Faculty
5. The Online Environment

### 1. Problems Related With the Technology

- **Internet access:** Lack of access whether it be for economical reasons will exclude otherwise eligible students from the course. Internet access poses a significant cost to the user. If the participants' time online is limited by the amount of internet access they can afford, then instruction and participation in the online program will not be equitable for all students in the course.
- **Computer Literacy:** Both students and facilitators must possess a minimum level of computer knowledge in order to function successfully in an online environment. For example, they must be able to use a variety of search engines and be comfortable navigating on the World Wide Web, as well as be familiar with FTP procedures and email.
- **Limitations of Technology:** User friendly and reliable technology is crucial to a successful online program. However, even the most sophisticated technology is not 100% reliable. However, breakdowns can occur at any point along the system.
- **For example,** the server which hosts the program could crash and cut all participants off from the class; individual PCs can have numerous problems which could limit student's access; the Internet connection could fail.

### 2. Problems related with the students

- **The student receives immediate quantitative responses but delayed qualitative responses (or none at all):** The student receives their numeric grade immediately after completing a task or exercise, which seems like a good idea. But because of immediacy of a response, it seems that educators don't feel it necessary to provide a richer, more qualitative response.
- **There is a lack of peer to peer learning:** In creative fields, seeing your peers making progress serves both as an instructional tool and as a motivator. This is lost online.
- **Isolation:** Though online learning offers ease, flexibility and the ability to remotely access a

classroom in the student's own time, learners may feel a sense of isolation.

- **Health Related Concerns:** Online learning requires the use of a computer and other such devices; this means that eyestrain, bad posture and other physical problems may affect the learner.

### 3. Problems related with the facilitator

- **Lack of Essential Online Qualities:** If facilitators are not properly trained in online delivery and methodologies, the success of the online program will be compromised. An online program will be weakened if its facilitators are not adequately prepared to function in the virtual classroom.

An online instructor must be able to compensate for lack of physical presence by creating a supportive environment in the virtual classroom. However, even if a virtual professor is competent enough to create a comfortable virtual environment in which the class can operate, still the lack of physical presence at an institution can be a limitation for an online program.

### 4. Problems Related with the Administration and Faculty

Some factors are disruptive to the successful implementation of an online program. Administrators and/or faculty members who are uncomfortable with change and working with technology or feel that online programs cannot offer quality education often inhibit the process of implementation. These people represent a considerable weakness in an online program because they can inhibit its success.

### 5. Problems Related with the Online Environment

- **What Should Not Be Taught Online:** In the excitement and enthusiasm for online programs, it is important to recognize that some subjects should not be taught online because the electronic medium in its current state of development does not permit the best method of instruction.

**Examples** are hands-on subjects such as surgery, dental hygiene, and sports where physical movement and practice contribute to the achievement of the learning objectives. These subjects are probably best taught in a face-to-face traditional learning environment.

## VI. RECOMMENDATIONS

Online learning in India is still growing and at an experimental stage. Online learning is not only inexpensive, but also convenient. Yet there are huge digital divides which need to be bridged on an urgent basis. For online learning to provide equitable path addressing India's higher education challenges, following are some of the ways ahead:

**Firstly**, the technological infrastructure of universities and colleges needs to be upgraded;

**Secondly**, universities and colleges may need to provide more active support to students to help them understand the types of skills required for successful online learning, and to help them develop those skills;

**Thirdly**, provide innovative feedback and assessment strategies to deepen the learning experience for students;

**Lastly**, students often experience low levels of interpersonal interaction with their instructor in online courses. Thus, colleges may need to provide more support for online faculty, to help them learn how to guide, support and connect with students in the online context.

So in order to make online learning successful the above mentioned things should be taken into consideration so that the students shows their interest to take up online courses for their higher studies.

## VII. CONCLUSION

The use of ICT in education lends itself to more student-centered and with the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop in the 21st century. In the last one hundred years, education has undergone gradual changes and evolved from being exclusively appreciated by the elite to being accessible to the public. Likewise, the learning approach has also evolved from learning merely in the classroom to distance learning and the virtual classroom. With the advent of technology, knowledge acquisition is no longer limited to the classroom. Online learning is here and is highly likely to stay and grow. The review of its history clearly shows online education has developed rapidly, fueled by internet connectivity, advanced technology, and a massive market. It has evolved from 19th century correspondence programs to the 21st century's vibrant

and well-designed institutional online offerings. We can anticipate that online education will continue to increase its presence and influence higher education through a vigorous process of reshaping, refining, and restructuring. It is unlikely, however, to replace traditional higher education but merely to be an alternative. But, owing to its flexibility, accessibility and affordability, online education is gaining popularity, especially for people who are otherwise unable to obtain education because of physical distance, schedule conflicts, and unaffordable costs.

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