

## TEACHING-LEARNING PROCESS AND ICT TOOLS- A REVIEW

By

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**Abstract,** *The 21<sup>st</sup> century is also called the digital age. Various information and communication technological tools are available to increase the efficacy of teaching and learning process. A review study has been conducted to review the modern information and communication technological (ICT) tools and application of these ICT tools in teaching-learning process. The review of literature indicated that various ICT tools significantly improves the teaching-learning process. So, it is essential to apply the ICT tools in teaching-learning process to achieve the desired goals.*

**Key Words:** *Information, Communication, Teaching, Learning, Technology*

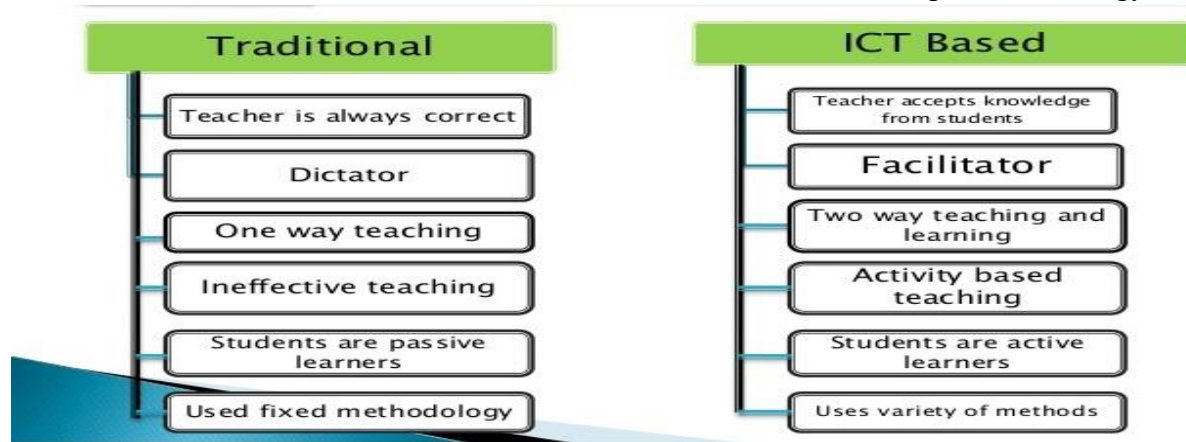
### I. Introduction

Teaching-learning process is a backbone of any country and plays a vital role for the progress of a state (Hafeez et al., 2020). The integration of information and communication technological tools (ICT) has altered the mode of teaching and learning (Saira et al., 2020). The entry of ICT in teaching-learning process has increased the efficacy of teachers and learners. In present century, ICT is an imperative part of every educational and economic organizations (Copriady, 2014). Nikolić et al., (2019) stated in a study that the latest information and communication technological tools have the abilities to improve teaching-learning process. The acceptance and implementation of ICT in teaching-learning has changed the

requirements of curriculum development and instructional design (Ahmadi et al., 2011).

Now the educationists and managers develop the curriculum according the requirement of the digital age of information and communication technology. Many researchers and instructors stated the benefits of applying ICT in teaching and learning process (Kaware & Sain, 2015; Bindu, 2016; Munyengabe et al., 2017; Olokooba et al., 2018; Mir, 2019; Wankhede, 2020). The fast growth of ICT tools and the development of internet has an incredible influence on teaching-learning process. The application of ICT in teaching-learning process improves the efficacy of learners to understand the courses and topics. The teaching-learning process becomes easy and increases the output quality of learning, easy and wide

range of various kinds of pedagogies and information (Kumbar et al., 2018). In this technological age, everyone's is experiencing the effects of information and communication technology especially it has more potential for instructors to improve the teaching - learning methodology. The use of ICT also improves the educational system of a country (Engkizar et al., 2018). The difference between traditional-based and ICT based classroom is shown in figure 1.



**Figure.1: Difference between Traditional-Based and ICT-Based Classrooms**

### Purpose of the Study

A lot of research studies proved the effectiveness of ICT tools in teaching-learning process (Bilyalova, 2017; Khan & Alwi, 2018; Das, 2019; Arvanitaki & Zaranis, 2020) but, no study has been found in which use of different information and communication technological tools are discussed. So, the objective of current study is to discuss the application of various ICT tools at different educational levels.

### III. Review of Literature

#### Various Tools of ICT

The application of various ICT tools in different educational levels are discussed in the following lines:

#### (i) Computer

The past twenty years have perceived an energetic shift form the traditional learning to the computer-based learning in the classrooms. Now the curriculum is designed on the basis of computer literacy and integration of computer in various disciplines at different educational levels (Bhalla, 2013). Moreover, the computer technology is being

applied in other educational works like preparation of excel files, questions papers, aptitude test and certificates for students and teachers (Selwyn, 2007).

The computer is the most commonly used ICT tool at all the educational levels. The recent development and advancement in information and communication technology has also brought the changes in computers. Now the smart phones and computer laptops are easily available to the teachers and the students. At higher educational level, the teachers and students used the computer laptop and mobile technology to integrate the computer technology in the learning process (Papadakis, 2018). The benefits of using computer at higher educational levels are easily accessible to the useful information

within the classroom, latest and advanced knowledge of relevant course content and engagement of the learners in the learning process (Park & Ko, 2012).

### **(ii) Internet**

The development of internet in teaching and learning process has an incredible influence. The right way application of information from the internet source makes the teaching and learning process very valuable and useful (Rolando et al., 2013). The usage of internet provides new modes of communication that increases the social interaction among people living in different countries reducing the problems of distance learning by various social networks (Phua et al., 2013). Moreover, the effective application of internet in teaching-learning process improves the pedagogical methods and also saves time (Jan et al., 2018). Chirwa, (2018) directed a research on internet application in engineering courses. The research of the study indicated that eighty percent teachers use internet to provide online demonstration. Forsyth, (2014) conducted a research on the application of study materials from internet among the postgraduate learners. The result of the research indicated that 95% postgraduate students use study materials from internet sources and only 5% students use the study materials provided by the instructors.

### **(iii) Multimedia**

The application of multimedia in teaching and learning process is a matter of urgency for teachers and students in this modern age of information and communication technology (Sejdiu, 2017). Many researchers including (Shipovskaya & Tsilenko, 2017; Iskandar et al., 2018; Awang et al., 2019; Fani et al., 2020) examined the effectiveness

of multimedia in teaching and learning process. Kapi et al., (2017) conducted a research to evaluate the effectiveness of multimedia in an undergraduate class in biology course. The results of the study indicated that the teachers who use the multimedia during the lecture produced better grades of the students as compared to the teachers who did not apply the multimedia during the teaching learning process. Wang, (2010) directed a quasi-experimental research to find the effectiveness of multimedia in various teaching and learning processes. The study indicated that the application of multimedia is an effective way of teaching and learning process.

### **(iv) Learning Management System (LMS)**

LMS solves many problems and misunderstandings between teachers and students, which has become an important part of educational activities in Europe and America (Alshorman & Bawaneh, 2018). The use of LMS to improve communication between teachers and students has been proven to be severely lacking in Pakistan. LMS offers a number of features that help teachers manage the platform with grading systems, secure content, test attendance, quizzes and a variety of assistive devices that connect students with useful educational resources. It helps teachers to make students better educated and helps students learn in advance when they are updated with their course work and extracurricular activities (Abazi-Bexheti et al., 2018). Many students pursuing higher education in Pakistan have internet connectivity for their social needs. Properly covered, it will withstand a great deal of adverse conditions for teachers and students. The great thing is that such online

learning management systems are free. The fee which is less expensive than traditional methods is usually applied if a large network of teachers wants more access to additional facilities Hamid et al., 2020).

The adoption of LMS is getting huge recognition in higher education institutes across the world in recent times. Fidani & Idrizi, (2012) argued that although such systems facilitate students to get access to their course contents without the bounding of location and time, and utilize communication tools in their learning and studying activities, which consequently, enhance their academic productivity and performance. However, it alone may not assure that students will be inspired to use these systems. Therefore, it is essential to find the factors which inspire the students in adopting and consistently using such systems (LMS) so that usage of these systems may be enhanced (Majadlawi et al., 2014).

#### **(v) Taleem Ghar App**

The public and private schools were closed during the Pandemic COVID-19. So, a great challenge has been faced by the Primary, Secondary and Higher secondary (K2) school's students. The Government of Pakistan has taken the steps to compensate the loss of these student by launching an application called as "Taleem Ghar". This application delivers recorded lectures of different classes including K2 in different times. It was the good initiative of Government of Pakistan. Now every student can watch the recorded lecture related to his class on this application.

#### **(vi) Skype**

Skype is a communications application that focusses on providing voice calls and video

chat used by mobile devices, tablets and computers. We can also send messages by Skype. The Skype application also offers video conferences. At the completion of 2010, there were over 660 million consumers of Skype in the globe with over 300 million active each month at the end of August 2015 (Global social networks by users 2015). The COVID-19 pandemic increased the number of daily operators by 70% in one previous month. During Pandemic Covid-19 many Pakistani universities, teachers and students used Skype for the online meeting, online viva voice, online undergraduate and graduate classes and online M.Phil. PhD thesis defence.

#### **(vii) Zoom Meeting**

The Zoom meeting software is an application for video conferencing that permits numerous members to share video, work on the whiteboard, and record. The Zoom Video Communications software is a USA based software. It offers video telephony and online learning and chat services through a cloud-based peer-to-peer software platform and is used for distance learning, social networking, teleconferencing and telecommunications. In early 2020, Zoom's meeting software practice saw a significant worldwide increase after the outbreak of epidemic disease Covid-19 and closeness of schools, colleges and universities (Muls et al., 2020). During the Pandemic COVID-19, ZOOM Meeting software has been widely used in the universities at undergraduate and postgraduate levels. Many Pakistani students and Teaches used the ZOOM Meeting software for online learning, Teaching, online M.Phil., PhD defence and viva vice. The Zoom meeting software was also used for taking online workshops and training courses.

## **Challenges in Implementing ICT Tools in Teaching and Learning**

Online learning and teaching faces several encounters from learner, teacher and content concerns. Attracting learners and connecting them in the learning procedure is a challenge for organizations. It is a challenge for educators to transfer from offline to online mode, altering their instruction approach and management of their time. In addition to covering the curriculum, it is challenging to develop materials that include students (Kebritchi et al., 2017). The quality of online-learning curriculum is a genuine challenge. The state has no clear settings in their instructive strategies regarding to online learning plans. There is a dearth of principles for quality, online resource development, online learning content delivery and quality control. This challenge needs to be addressed instantly so that everybody can acquire a quality learning through online learning (Cojocariu et al., 2014). The attention must be not only on experts who exercise online learning during disasters, but also on developing and improving the superiority of computer-generated courses delivered in such crises (Affouneh et al., 2020).

Online learning can be very time consuming and costly. It is not easy, requiring significant investment in acquiring tools and equipment, managing apparatus, training human capitals and developing online learning content. Therefore, there is a need to develop an efficient and effective education system to provide education through online mode. It is important to ensure digital equity at this critical stage. Not all educators and learners have accessible to all digital apparatus, the Wi-Fi and Internet. The availability of appropriate digital modes, internet connectivity or Effie Wi-Fi connectivity

connection can be very bothersome, affecting numerous learners to miss out on learning chances. Administrations must make struggles to confirm that every learner and faculty member uses the required resources. Students should make sure that all learning applications work on smart phones if they do not have a laptop. Therefore, steps must be taken to diminish the digital difference. Learners and the educators at several colleges and universities have not really trained for online learning. Maximum of them are satisfactory and fixed with traditional learning and teaching methods. The chance of getting the best out of the current situation with the spread of corona virus. We can acquire a lot in during this challenging condition. There are various tools available for teaching-learning process. The educators need to select the finest tool to deliver education to their learners. A step-by-step guide must be developed by educational organizations to guide educators and learners to access and apply several online learning tools and thus reduce digital illiteracy by covering key course topics through these technologies. Teachers can present lessons in a variety of formats, meaning they can use video, audio and lessons. It is beneficial for teachers to get quick feedback on their lectures with video lectures, computer-generated meetings and so on and to maintain an individual relationship with the learners.

## **III. Possible Solutions**

There are numerous problems associated with online learning, but we cannot ignore its importance in such a time of disaster. We can solve these problems in many ways. The online course contents must be self-motivated, exciting and collaborative. The educators must set targets and reminders to retain the learners alert and concentrating.

Struggles should be prepared to improve the education process as much as conceivable. Individual consideration must be paid to make the learning process easier for learners to accept this teaching learning environment. The University Learning Management (LMS) system, Skype, zoom meeting software Social media can be import to communicate with learners. Communication is critical when trying to approach the learners through text messages, various software applications, audio/video calls and so on. There must be continuously development in the quality of courses contents and the educators must attempt to deliver their best. Online courses must be creative, collaborative, relevant to the course content and students-cantered. The educators need to spend a lot of time to develop active approaches for online learning process (Lange & Costley, 2020). Computer-generated delivery of courses has enlarged due to the instant dispatch of school, university and college learners packing and terminating all campuses in China and other parts of the globe. present (Bao, 2020). In last two decades, the improvement of information technology in teaching and learning has made the education technology-based learning. The advancement has improved in many schools, colleges and universities that adopted digital learning (Murphy, 2020). Some latest studies have discovered the encounters and openings related to E-learning during epidemic Covid-19 conditions. Scholars are trying to discover the advantages and challenges of current E-learning curriculums from different shareholder perceptions. A research conducted by (Almanthari et al., 2020) suggested that scholars 'voices on this issue are significant, therefore, future investigation must inspect learners' opinions on online

teaching and learning to examine the challenges.

### **Discussion**

The 21<sup>st</sup> century is called a digital century. The ways for application of information and communication technological tools in teaching and learning process have been changed. Various information and communication technological tools are available for improving the teaching and learning process (Dhital, 2018; Razak et al., 2019; Kibuku et al., 2020). The integration of ICT tools in teaching-learning process has improved the educational systems. The online learning system has also improved due to the application of modern information and communication technological tools. Now internet, multemdeia, skype, zoom meeting tools are available to make the teaching and learning process valuable and useful (Muslem et al., 2018; Nikolić et al., 2019; Vershitskaya et al., 2020).

A study has been conducted to review the ICT tools used in teaching-learning process. The ICT tools applied in teaching-learning process like computer, internet, multimedia, Learning Management System, skype, Taleem Ghar App and Zoom meeting are reviewed in this study. The review of literature showed the application of ICT tools improved the efficacy of teaching and learning process.

### **IV. Conclusion**

The traditional lecture and learning does not improve the cognitive and communication skills of the learners. Modern ICT tools are available to improve teaching-learning process and to increase the efficacy of educational system. A review study has been conducted to review the modern information

and communication technological tools and utilization of these ICT tools in teaching - learning process. The review of literature indicated that usage of modern ICT tools in teaching- learning process successfully improved the teaching-learning process.

### Conflict of Interest

No conflict of interest occurs between the authors.

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