

# Effects The Use of Information and Communication Technologies on Educational Development: A Study in Punjab Pakistan

Maryum Nawaz  
*Department of Sociology*  
*University of Sargodha*  
Sargodha, Pakistan  
maryum.nawaz50@gmail.com

Dr. Humera Amin  
*Assistant Professor, Department of Sociology*  
*University of Sargodha*  
Sargodha, Pakistan  
[Humeraamin@yahoo.com](mailto:Humeraamin@yahoo.com)

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**Abstract**— Technologies enable the students to develop into more independent, concept development and active learners. It helps the teachers to organize the students for the real world environment. It is best and attractive way in teaching and helpful for the slow learners. The purpose of the study was to find out the available technological resources, whether these resources were effective for learning and that can alleviate problems or not. Researcher found that Information and Communication Technologies helps to improve student's creativity and their innovative learning especially in research project. It is concluded that there should be conduct seminars and conferences for the technological awareness and its importance in our educational system. It is important to implementation of policies for the benefit of students. Technical classes should be given to all classes because this duality of theoretical and practical knowledge enables the students to become Independent learner.

**Keywords**—Information and Communication Technologies, learning, Education, Knowledge

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## I. INTRODUCTION

Technology in the educational system is ethical practice to improve the progress of human learning and aids to get better performance by creating, managing and using proper technological process. Technologies intend to expand the capability of students by improving the attitude, enthusiasm of students, comfortable classroom and improve retention of students. Technology is a teaching aid, technological development such as projectors, mind training software, power point presentation, interacting learning centers, 3D visualization these all technological resources can help for the latest techniques for teachers to facilitate their students and hold on their concept development. Now it is understandable that visual enlightenment of concept constructs students learning enjoyable and create fun for our students. They competent to take part more in the classroom. Teacher gets a chance to make their

classes more interesting and interactive. Technologies enable students to become independent learner, concept development and active learners. It helps to teachers to organize the students for the real world environment. It is best and attractive way of teaching and helpful for the slow learners. Our nation is becoming more dependent on technology and plays vital role to be a successful citizen and students must learn more. When the environment of classrooms is highly technological equipped, than students easily and quickly able to access to the most up-to-date information. Internet provides new knowledge building communities <sup>[1]</sup>. The growth of technology has dramatically changed in the world, which also bring twist in our daily routine. These days' students growing up at the world in which social media (newspaper, Radio and few channels on T.V), Internet, cell phone and many other technologies dominant their communication and they are a central part of daily life and positive impact on student's cognitive

and emotional development <sup>[10]</sup>. Technological development is one of the most important factors for student in many societies and due to the vast development of technologies this era can also be called the “Age of Technology”. From all above analysis it is essential to look into the challenges of using technology. The purpose of the study was to find out that what technological resources were available, whether the resources were effective for learning and alleviate problems or not. Based on the finding of this study, the researcher has prepared suggestions to improve the use of technology in educational development.

Education is vital for the student’s learning and wireless technologies facilitate new content and enable the students to independent learners. New technological devices allow the students to communicate and create rich digital resources. With the passage of time the world is moving toward machine learning so there is need of update our curriculum, it was important to train students to develop new skills. These latest technologies enable the students to engage learning in proper and advance way. Learning was more comfortable with these advance technologies and it helped them to adopt the quickly developing new technologies. There are positive impacts of digital technologies on measurable learning outcomes. He focus on the positive impacts of educational technology such as: interactive white board increase learning of whole class students. Young students learn through computers and internet and teachers assumed use of ICT should lead to the better engagement. Strategies to using technology in educational institutions, which included great use of information system and analyze learner achievement, that is improved <sup>[12]</sup>. Now the classrooms are worldwide that using the technology that change the practices to teachers and students. In many classroom the uses the tools of technologies and resources supports students as they are searching for information and publish result. Teacher builds the structure and presents the advice than monitor the progress of students. Networked technology can facilitate teacher to construct global and local communities that attach them and increase opportunities for learning <sup>[15]</sup>.

### 1.1 Technologies use in educational system

**Small Portable Devices:** In mobile phones, personal digital assistants (PDA’s), eBook readers and laptops are dominant computers and in fact more versatile. These phone purposes that can run progressively extensive range of features that are main thing to consider that provide the operating system, Text-to-speech, Speech to Text, the screen resolution, memory, front and back cameras, connectivity, multi-tasking. In addition, to typical phone functions that run gradually broad collection of apps that offer office type software, eBook readers, assistive technology, a calendar, email, web browser, GPS, camera, video and audio players and recorders and educational tools. Digital Voice Recorder is helpful for a collection of tasks such as: taking personal reminder notes, recording lectures and playing back audio files. This can be helpful if you have slow speed of writing, get confused when think about a spelling. Portable electronic dictionary and thesaurus is device or app uses a UK or US English dictionary. In which some apps excess for speech based search. Few devices and apps have an option of auto correction if you are not sure the accurate spelling of word, some devices and apps have option of text-to-speech and they pronounce a word and in some case they provide the definition and some devices provide hyperlinks to similar words. Reading Pens an electronic aid that helps in English language learning by offer English language vocabulary and pronunciation In storage and security storage devices use to transfer data from one device to another device or save the data, whilst USB have been use long to back up our work, now latest cloud storage reduces the risk of lose our data.

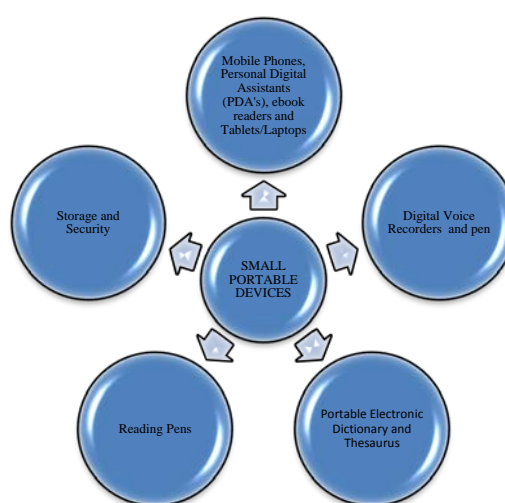


Figure 1.1 Example of Small Portable Devices

**Virtual Classroom:** It is online learning environments that allow participants to interconnect with one another. Where students can view, interact

and discuss their presentations. They engage with educational resources while working in group and it's some online settings<sup>[3]</sup>. In which medium is usually use for video conferencing application, which can offer for the numerous users to interconnect at same time with connection of internet and applicants include one or multiple teachers and students, which permit users from virtually someplace to participate. However, the instructor helps and evaluates the students and in few cases there wouldn't any instructor in room. It is also famous as virtual learning environment (VLE). It has benefits that learning is more interesting and attractive for the students and not geographical area is limited for courses.

**Social Networks:** Social networking is a tool for students to connect with other students with enable them to collaborate with each other. Most of the people believe that now social networking and education is closely interrelated. Platforms of social networks are essential part of mainstream culture. Who have access of internet can easily use blogging, chatting and online communities on social networks. Students can use these programs with variety of ways, in fact, in a study report 90% of students who have internet access and they use social networking. On another way, today's students are using technology for learning purpose and 59% surveyed students indicate that these are talking about education related topic by their social networks. Educational development is a major priority with technology in developing countries. The main need of this project to determine the effect of technology on the student's behavior presented by personal achievements, family and social interaction and general health. Education plays a vital role in any country's long run success. Education is one of the best things which make a poor person into successful person. It provides nation to face international challenges with comfort and ease and educational technology helps the students to set their own goals to analyze and create their missions in order to know their progress. Now students are part of modern age, where the use of technology is very essential in every part of their life. Technology has made our life more smooth and easy. Effective technological education will recommend good technicians and it will definitely provide their output in term of achievement of country. Technology is not a difficult task to adopt but it is also not a piece of cake to create the new technology

**Learning Management System:**

Learning management system is software design for delivery of e-learning education courses which

include interaction between learner and instructor, sometimes also between learners to learners. It is a software application for the main purpose of administration, documentation, guidance and reporting programs. It is cloud based software program which contain information about the users, content and courses without the limitation of time and space boundaries. It is also known as Course Management System (CMS) and Personal learning Environment (PLE)<sup>[8]</sup>. Learning management system permit administration, lecturers and students managing training and educational records keep in the software for the courses in excess of internet and it also offers few features for online collaboration<sup>[10]</sup>.

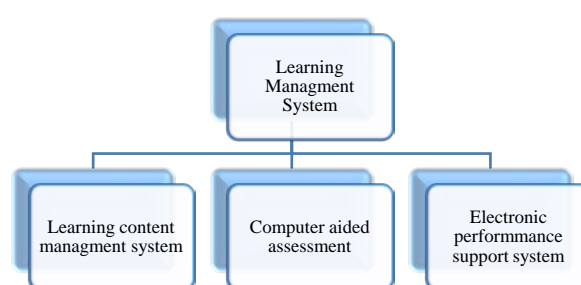


Figure 1.2 Learning Management System

**E-Learning Authoring Tools:** The basic concept of e-learning plays a vital role in our educational system and its effectiveness is closely related to technological environment in educational institution. It can motivate students, especially helps to under-achieving students for learning. Their word processing software improves their writing skill. Classroom environment changed into new learning environment instead of traditional learning environment for more learning. It is closely related to the combination of technology and pedagogy and this sort of teaching change the result to using a particular technology. Due to e-learning system pedagogical teaching transfer from a teacher to centered classroom environment, more effective use of technology for concept development. There are numerous e-learning setting and technologies existing in educational institutions and its combination of technologies and books for positive impact on learning. Multimedia classroom and computer lab are sources of e-learning in schools system. Personal computer, Micro computer and laptop or notebooks are variety of types of single station devices. Small personal devices (tablets, smart phone and e-readers) are all relatively new technologies. It's a broad term which include teaching, learning and educational environment. It is combination of pedagogical approaches and existence of technologies. There are

few examples of use technologies in e-learning classroom are below.

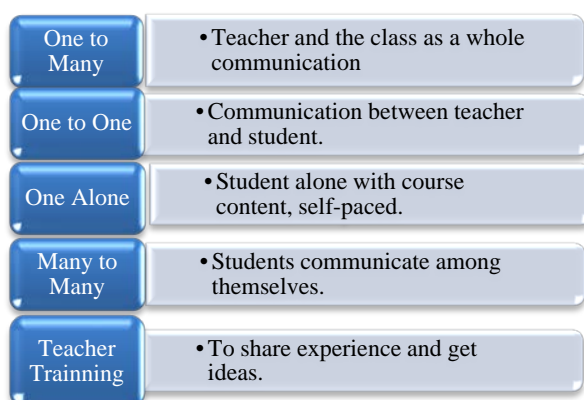


Figure 1.3: Approaches of E-Learning Classroom

### 1.2 Situation of Pakistan

Almost 5.5 million children in Pakistan are out of school. Pakistan has highest number of illiterate adults in the world. However the truth is that even students who are going to school, they are not acquiring the quality of education. Our education system is manufacturing products rather than leaders who can think out of bound and didn't solve the existing issues in Pakistan <sup>[6]</sup>. It founded that educational technology plays a crucial and fundamental role in learning teaching process. They can make teaching learning process more successful and effective. A large number of teachers were in the view that education technologies ensure students motivation; attract student attention, student's motivation and improvement of atmosphere for teaching learning process.

In Pakistan, one of the major problem find that teachers were not skilled for effective use of educational technology and majority of teachers are not by means of effective use of technology. Pakistan also has not available educational software, overhead projector, internet facilities and multimedia projector in mostly educational institutes especially in rural areas and majority of the teachers use only blackboard in their learning process. Mostly maps, pictures, flashcards and charts are use in their classes <sup>[9]</sup>.

Educational system is still underdeveloped in Pakistan. Targets and goals are big but funds of education are very low. These targets and goals can be achieved by multiplying the growth rate and the growth rate can be successes only if the resource inputs are efficiently used in the educational development at all level of education in the country. So it is suggested that the efficient use of educational

technology must be ensured in the lesson plan of a school level class.

In higher level of education has been adopting the technology but still at the back in creating technology in all relevant fields. Pakistan requires a lot of Capital, intensive level of knowledge and very high skilled teams to develop any kind of technology and the technology play a vital role in the development of country. Education at all levels in the course of better quality textbooks at reasonable price and other learning materials for promoting Pakistan as knowledge based society <sup>[7]</sup>.

There are many educational systems and mediums. In Pakistan there are private institutes, government institutes and madrassa system and they are giving different types of education.

No doubt private institutes are offering good quality of educational system. They are offering the high level of curriculum and it is different from the traditional educational system. Students of these institutions are conscious of latest innovations. They are competent to survive in modern technological world. They are capable to get top level of jobs opportunities. In fact, companies have a preference to higher the people whom schooling is from city schools or beacon house etc. Students of private institutes are more independent and confident due to adopting of latest technologies.

In government educational systems mostly students are belong to middle and lower middle class of society. These students are ignorant of modern technologies and they are unaware from it. They couldn't pay interest on the co-curriculum activities and it made the students dull, less confidence and don't pay attention to enhance the abilities of the students.

In madrassa educational system in Pakistan are giving Islamic education to their students. Poverty is an essential issue therefore parents send them madrassa because they are given that free of cost education. They are ignorant of modern technologies and not capable to survive in modern technological world. They don't get modern and technical education.

Impact of technology on learning and in his study he include beta's stated that "growing body of national and international evidence demonstrating the positive impact of digital technologies on measurable learning outcomes". He focus on the positive impacts of educational technology such as: interactive white

board increase learning of whole class students. Young students learn through computers and internet and teachers assumed use of ICT should lead to the better engagement. Strategies to using technology in educational institutions, which included great use of information system and analyze learner achievement, that is improved [2].

Education is an essential need which is directly linked with socio-economic growth of any country. Total literacy rate in Pakistan is 59%. Educational system is divided into six levels in Pakistan:

Preschool	for the age for 3 to 5 years
Primary	Grades one through five
Middle	Grades six through eight
Secondary	Grades nine and ten
Intermediate	Grades eleven and twelve
University	Undergraduate and Postgraduate programs

There is also advance placement of O/A levels, which is alternative option on the replacement of secondary and intermediate but it is less common only a few private institutes are offering for these programs. Technical education system is also another type of education system in Pakistan, its gathering technical and vocational education. However, current government expenditure is 2.5% of GDP on education.

Table shows literacy rate of Pakistan by provinces

Province	Literacy rate				
	1972	1981	1998	2012	2016
Punjab	20.7%	27.4%	46.6%	71%	73.21%
Sindh	30.2%	31.5%	45.3%	69%	60.44%
KPK	15.5%	16.7%	35.4%	60%	65.32%
Balochistan	10.1%	10.3%	26.6%	50%	51.4%

Table shows literacy rate of Federally Administered Areas

Region	Literacy rate		
	1981	1998	2016
Islamabad	57.8%	72.88%	85.74%
Azad Kashmir	35.7%	65%	81.68%
Gilgit-Baldistan	21%	57.85%	73.21%
Tribal Areas	6.38%	17.42%	54.5%

Technology integration in education and he examine that information and communication technology is an effective source in motivating political, economic and educational reform. The health of financial condition of any country either poor, rich or develop developing was depending on the level and quality of

education. Education reform was taking place all over the world and one of the rules of this reform was to integration and introduction of ICT in the educational system [4].

## 2. Research Methodology

According to need of Research population of study were the students of universities who are getting higher education such as Masters, M.Phil and PhD. There are total 59 Universities in which 34 universities are government and 25 universities are Private in Punjab, Pakistan.

There are 36 districts in Punjab, Pakistan. The study area of present research is three major districts of Punjab, Pakistan selected by simple random sampling that are Lahore, Faisalabad and Rawalpindi.

At the second stage, there are 27 Universities in Lahore (12 Government and 15 Private), 4 Universities in Faisalabad (3 Government and 1 Private) and 2 Universities in Rawalpindi (2 Government and 0 Private) out of these universities selected two universities from each district through *simple random sampling* include University of Arid Agriculture, Rawalpindi and Fatima Jinnah Women University, Rawalpindi, University of Faisalabad, University of Agriculture, Faisalabad, University of Engineering and Technology, Lahore and University of Central Punjab, Lahore.

Furthermore, from each university an average of 50 students were selected. Afterwards the researcher interviewed the respondent (both male and female) selected by *convenience sampling*.

## 3. Results and Discussion

Table: 1

Percentage distribution of respondents with respect to their perception about this statement “Smart board is flexible to enhance learning to engage the students”.

Category	Frequency	Percentage
Often	184	61.3
Rarely	104	34.7
Not at All	12	4.0
<b>Total</b>	<b>300</b>	<b>100</b>

The percentage distribution of respondents show the view point on the smart board that it is flexible to enhance learning to engage the students and the data shows 61.3% respondents agreed that often smart board is flexible to enhance learning, while 34.7% of them replied rarely and remaining 12% respondents are not agree with this statement it shows that Smart board recommended good technicians and it will provide their output in the term of achievement.

**Table: 2**

Percentage distribution of respondents with respect to their perception about this statement “The use of internet increases the interest of students.”

Category	Frequency	Percentage
Often	236	78.7
Rarely	61	20.3
Not at All	3	1.0
<b>Total</b>	<b>300</b>	<b>100</b>

The above table shows that majority 78.7% respondents were often realize that internet increases the interest of students, (20.3%) respondents told that rarely their interest increase after uses of internet remaining (1.0%) students neglect this statement. This table shows that that young student learn through computers and internet and teachers assumed use of ICT should lead to the better engagement. Strategies to using technology in educational institutions, which included great use of information system and analyze learner achievement, that is improved. Students mostly use the computer and internet in their educational work to complete their assignment and these electronics help them to become a independent learner.

**Table: 3**

Percentage distribution of respondents with respect of their perception about this statement “Networked technology can facilitate to construct global and local communities that attach them and increase opportunities for learning.”

Category	Frequency	Percentage
Often	202	67.3
Rarely	85	28.3
Not at All	13	4.3
<b>Total</b>	<b>300</b>	<b>100</b>

The above table shows that two third (67.3%) respondents were agree with this statement only (4.3%) respondents neglect it and remaining (28.3%) said it’s rarely. It explain that learning is continues process through out in their whole life from the interaction in their society and now we can communicate through network connections. Our mind is influence by social interactions and implementations of technology enhance our social learning. Theories changed with the advancement of technological advancement. Social learning theory influence on behavior and take benefit from technology. Technologies provide a lot of new and innovative patterns to develop social learning

environments. Through technologies we can interact and examine other persons. Students are frequently encircled by social influences either it is a community influence or a technological influence and this advance observational learning capable the students to expand their knowledge and skills.

**Table: 4**

Percentage distribution of respondents with respect of their perception about this statement “Technological environment is effectual way to solve the challenging situations and meaningful understandings occur.”

Category	Frequency	Percentage
Often	184	61.3
Rarely	96	32.0
Not at All	20	6.7
<b>Total</b>	<b>300</b>	<b>100</b>

Latest technologies enable the students to engage learning in proper and advance way and learning was more comfortable and it helps them to quickly adopt. This table reflect that vast majority (61.3%) of the respondents were reported that often meaningful understanding occur and resolve problematic solutions. One third (32.0%) replied as rarely and remaining only (6.7%) were replied that meaningful understandings were not occurs to resolve problematic solution.

**Table: 5**

Percentage distribution of respondents with respect of their perception about this statement “Pedagogical process requisite for practical implantation of these meditational tools place in into their practice.”

Category	Frequency	Percentage
Often	133	44.3
Rarely	129	43.0
Not at All	38	12.7
<b>Total</b>	<b>300</b>	<b>100</b>

The above table shows the frequency and percentage distribution of respondents according to their view point about the pedagogical process required for practical implementation of these meditational tools inserted into their practice and the (44.3%) of respondents were agree with it, furthermore (43.0%) of respondents answered as rarely and remaining (12.0%) of respondents were not agree with this statement.

**Table: 6**

Percentage distribution of respondents with respect to their perception about this statement “Learning

management system can do more work in short practice”.

Category	Frequency	Percentage
Often	184	61.3
Rarely	104	34.7
Not at All	12	4.0
<b>Total</b>	<b>300</b>	<b>100</b>

According to the above table shows majority 61.3% of respondents told learning management system often do more work in short practice, 34.7% respondents were reply in rarely but just 4.0% respondents respond in not at all. Learning management system permit administration, lecturers and students managing training and educational records keep in the software for the courses in excess of internet and it also offers few features for online collaboration.

**Table: 7**

Percentage distribution of respondents with respect to their perception about this statement “Wireless technology facilitates new contents and enables the students to become independent learner.”

Category	Frequency	Percentage
Often	212	70.7
Rarely	69	23.0
Not at All	19	6.3
<b>Total</b>	<b>300</b>	<b>100</b>

The above data shows the frequency and percentage distribution of respondent according to their view point about wireless technology facilitates new contents and enables the students to become independent learner. Which reveals that majority 70.7% of respondents reported that often wireless technology enable them to become independent learner, 23.0% respondents respond rarely this technology facilitate new contents and enables to become independent learner, on the other hand 6.3% respondents are disagree with this statement.

**Table: 8**

Percentage distribution of respondents with respect of their perception about this statement “Video conference students should be able to justify their thinking and candidly negotiate their interpretation and resolution to instructional task.”

Category	Frequency	Percentage
Often	166	55.3
Rarely	106	35.3

Not at All	68	9.3
<b>Total</b>	<b>300</b>	<b>100</b>

The above table shows that almost half (55.3%) respondents were agree with this statement, one third (35.3%) respondent said rarely and only (9.3%) respondents were not agree.

#### 4. Conclusion

It was found that technology facilitate the students to become independent learner, it improve the students interest because many websites provide practical knowledge with theoretical work. It was also found that virtual classrooms is one of the best way to restricting a classroom which also bring active learning for students when the learning remain inert and superficial bringing about boredom and it makes learning more interesting and attractive for the students.

Pakistan requires a lot of Capital, intensive level of knowledge and very high skilled teams to develop any kind of technology and the technology pay a vital role in the development of country. In our educational system there is need to provide the better quality of textbooks at reasonable price and other learning materials for promoting Pakistan as knowledge based society.

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