

## THE ROLE OF ICT IN DEVELOPING CRITICAL THINKING SKILLS IN LEARNERS AT SECONDARY SCHOOL IN DISTRICT KHAIRPUR

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### ABSTRACT

*As present era is contemporary era of technology. Regularly evolving technologies are becoming an important part of our lives. Moreover, these newer technologies are taking the market by storm and people are getting used to them in no time. Above all, technological advancement has led to the growth and development of nations. Using technology in education has become a center point of many researches and studies. Modern education has to be combined with modern technology to come up with best results.*

*Kasten (2017) believes, the ability to think critically is a skill that separates innovators from followers. He further says that the ability to think critically benefit students throughout their lives. Linda Elder and Richard Paul, the authors of "Critical Thinking Development: A Stage Theory," argue students who know how to analyze and critique ideas are able to make connections across disciplines, see knowledge as useful and applicable to daily life and understand content on a deeper and more lasting level.*

*This research study was conducted, by keeping in view the involvement of technology in teaching & learning and importance of critical thinking skills in the lives of youth which is considered the future of Pakistan. The main purpose was to find out the role of technology in developing critical thinking skills in learners of secondary level in Pakistan. Both quantitative and qualitative approaches were used to solve the query. The population of this study was software experts, secondary schools' heads/principals, subject teachers of Computer Science, and teachers teaching different subjects at secondary schools in District Khairpur. The questionnaires consisting close-ended and open-ended questions were distributed among the selected sample. The quantitative responses were analyzed using SPSS while qualitative responses analyzed using NVivo. The analysis reveal that emerging technologies can be used for developing critical thinking skills but we need to develop such technologies which are compatible with our education system and can fulfill the needs of our students. But finance is needed to develop or purchase such technologies therefore government should take keen interest in this matter and should provide financial support to educational institutions for the purpose.*

**Keywords:** Information and Communication Technologies, Critical Thinking Skills and Secondary School Level Learners.

### INTRODUCTION

Information and communication technologies (ICT) have great impact on every sector of life. Even in every field individual specialists are welcomed, while without technology, knowledge and skills are also considered to be useless. There was a time when a person was used to see all the technology related matters in an organization or institution, but now the needs emerging in every sector require nurse to ensure that they are ready to choose

employees. The research studies' results had made it clear that many latest technologies can be used as a potent technical instrument in an educational setup to meet the rising encounters. The technology is extensively recycled as a powerful device in the Internet's extensive educational activities. Educational technology must be entered into classroom and curriculum (Clements and Sarama, 2003; Glaubke 2007; NAEYC and Fred Rogers Center, 2012). Clark Richard (2013) was among the first studies in comparison with the traditional and modern methods of research with educational technologies. He has compared the traditional way of teaching with computer assisted teaching and have concluded that the learning through computer assisted instruction is better than the traditional one. As a result, other authors (Dynarski et al. 2017; Kulik, 2013) came up with some important differences in the use of educational technology and traditional education. As a mutual saying, 'Education is the greatest influential device to prevent societal foul', through appropriate planning and policies, tutors can participate in the contribution of societal growth of learners. As educators are accountable for rational, moral and overall development of students, they can change their minds and move their ideas forward to positive goals. Some people also notice that ICT devices are nonentity nonetheless time consumers. Pupils are the assets of their countries and they must to emphasis on their education and it is the liability of parents and teachers to retain pupils away from such things. This idea is unique, because the probe has proved that children start using numerical devices in the early years of their lives. When they step in school, they are already ready to learn through technology. Digital instruments are very helpful for students who can improve their education using these devices. They can expand their resources through limited resources. They can validate their ideas, improve their concepts, communicate with their thoughts, and acquire commendably. Learning, in this way, is to make them a skilled person. The concept of modern education focuses on the general progress of the pupils. Information in the manuals is not sufficient for actual knowledge; Students can access different resources and learn effectively in limited time through ICTs devices. Education sector is the utmost an actual sector to expect and abolish harmful effects of ICT. Especially teachers and technologies need to change the viewpoint of educational leaders. Unluckily, because of many factors Pakistan's educational system is undergoing a severe crisis. All the factors are affecting on educational plans and policies, therefore cannot be implemented in the institutions. According to the survey report, Ministry of Education announced new policy for the next ten years, but the previous policy was not over until 1998 to 2010. This, indeed, is a dangerous sign for our educational standards and the future of the nation. Education at school level has limited access to information and communication technologies (ICT). Its main reason is limited knowledge, limited resources, other obstacles and challenges to teachers and academic leaders about this effective strategy. Teachers are nation builders and are hold most important position in any country, they are responsible for helping young people to make them an effective part of their nations. Unless young people are mentally well suited to solving problems and a nation cannot succeed to solve their problems effectively. In the present age where technology has ruined every area of life, a successful person's survival is not possible unless he has taught and trained through technology. So, it's a great time to make a change in the educational system. Change is possible only through changes in ideas. That's why; Teachers and academicians need to expand their views. The complexities of the current and progressive times of the coming times, is really dangerous for our nation. Despite being a potential follower of the country, academic leaders should take part in their efforts and take measures to expect and device real alterations in their respective fields. Teachers and academic leaders can be provided with education and training so that they can use of digital tools in best way to improve the learning process so definitely there will be effective learning. The lack of technical knowledge of

teachers and leaders is one of the biggest obstacles in the production of useful youth, who could meet the challenges of modern world, therefore, they are unable to include digital tools to get good learning results in the capacity of students. Teachers are needed to provide with training, because they are responsible for offering students' needs. In this regard, information and communication technologies (ICTs) cannot be ignored. Digital tools such as Internet, Multimedia etc. can play a role in transforming teachers based classroom. To confirm a successful ICT integration school leader, have to begin with emerging an ICT policy strategy that is beached in a communal apparition of instruction and knowledge on the one hand and ICT amalgamation on the other hand (Fishman & Pinkard, 2001). An ICT policy strategy is a manuscript that defines practical and substructure stipulations, but mainly defines the knowledge purposes for ICT use as well as plans of its application. (Vanderlin et al., May 2012). ICT integration in schools is not only a matter of policy, but of vision and strategy. Being clear about objectives increases the probability that the desired outcome will be achieved. Emerging an ICT Policy, revelation and plan covers the conservational ICT setting, assist technological organization, indorse professional development, recovers curriculum, teaching and content enhancement, running and economics operation and easy watching and assessment. (Tedla, 2012). The progress of a common revelation about how ICT is to be used for education and knowledge (Hughes & Zachariah, 2001; Otto & Albion, 2002) is very significant. ICT policy preparation needs partnership of educators throughout the procedure of policy preparation and choice creation (Fishman & Pinkard, 2001). The strategy thus comprises basics such as a revelation for using ICT in schoolrooms, giving professional development, ICT skills predictable of educators and pupils, ICT curriculum, hardware and software to obtain and upkeep, capitals to assign, etc. The advanced ICT strategy plot wants to be regularly reorganized (Fishman & Pinkard, 2001) following the watching of the operation of the strategy. What also needs to be considered by the school leader is to develop a realistic plan as rented strategies on ICT matter continuously persist unrealistic and assured to fail. Accurate strategy helps as an outline, proposal to assimilate and assist ICT application in schools. (Tedla, 2012)

### **Statement of the Problem**

Because of ICTs importance and effectiveness, these are used worldwide for effective teaching and maximum learning outcomes among students. But in the education system of Pakistan the use of ICTs is not observed. In some institutions the facility is not available for the teachers. Teachers communicate using tradition methods of teaching that is not enough to improve the competencies among the students. The students who attend these institutions are unable to use the concept taught to them practically. This affects their career and national economy as well. This is also observed that in some institutions ICTs are available but the use is not observed. The school managements do not encourage teachers to integrate ICTs in their pedagogies. It is also observed, in some cases that teachers are familiar with the use of multiple ICT- based digital tools and carry on with their jobs relying on tradition teacher-oriented methods. Teachers-oriented classrooms do not encourage students to learn a concept effectively. For enabling students to compete with the future challenges educators need to transform the educational practices that are based on traditional teacher-oriented methods to competency-based learning by integrating ICT in their classroom teaching.

### **OBJECTIVES OF THE RESEARCH STUDY**

The objective of this research study are as under:

- a. How can different digital tools be used to improve students' ability?
- b. To identify the obstacles faced by educational leaders while integrating technologies in their educational system

## **RESEARCH QUESTIONS**

Following questions provided guideline to the researchers:

- a. What are the latest information and communication technologies available for teaching and learning?
- b. Are those ICTs available in district Khaipur Mirs?
- c. What are impacts of those technologies on students' competencies?

## **RESEARCH HYPOTHESIS**

The below mentioned research hypothesis was formed for testing of assumption:

“There is no significant relationship between ICTs and critical thinking skills of secondary school students.”

## **RESEARCH METHODOLOGY**

Both quantitative and qualitative research approaches were implied to solve the query; data was collected by using questionnaire having close and open-ended questions. The strategy in this study was to the selected heads, subject teachers, computer teachers public and private secondary schools, moreover ICT experts available in the market in accordance with a classified random sampling method. This study used quantity research method, however some data was also collected through observations, field notices and unorganized interviews

### **Sample**

In the sample there were five (05) Software developers, ten (20) teachers teaching Computer Science Subject, twenty (10) heads/principals, and eighty-eight (88) two (02) each males and females teaching different subjects in different public and private secondary schools, were included in the sample, the detail is below:

<b>S. No</b>	<b>Category</b>	<b>Specification</b>	<b>No of Participants</b>	<b>Total</b>
1.	Software Developers	Private	05	05
2.	Teachers of Computer Science Subject	(05) each Public & Private Schools	02 each Male & Female	20
3.	Heads/Principals	(05) each Public & Private Schools	01 each Male & Female	10
4.	Subject Teachers	(05) each Public & Private Schools	02 each subjects, 11 subjects	220
<b>Grand Total</b>				<b>255</b>

### **Data Analysis**

#### **Response of Headteachers**

In response to an open-ended question, the headteachers admitted the fact that ICTs is become part and parcel in almost all fields of life. The heads/principals were in favor of ICTs integration in teaching process so to have competencies based learning outcomes in the students to the future needs.

#### **Responses of Subject Teachers**

Almost all teachers agreed that ICT should be introduced in teaching and learning process because it has good impact on the students learning and it is generally found that those

students who spend more time in using technologies are sharper than those who do not.

### **Responses of Software Developers**

In response to one of the questions all respondents who were the experts of ICTs said that 'Yes' such software are available in the market, which can be used for classroom teaching and learning. But said that such software is expensive, maybe we will not be able to purchase. Moreover, they said the available software is not useful for our education system, they gave opinion that we have to develop new or we have to change them as per the need of our system, or we have to simplify the language of those software just to make it understandable for our students. They proposed that software developers are working to develop new software but for further work all stakeholders i.e. policy makers, curriculum developers, textbooks developers, educational leadership, and teachers need to be on one page. When all will sit together then it will be easy to develop such software.

### **Responses of Teachers Teaching Computer Science**

They agreed that ICTs can be used for teaching purpose but said funds are not available because government have no interest in such initiatives. The responses of participants are as under:

<b>S. No.</b>	<b>Option</b>	<b>No. of Participants</b>	<b>Percentage</b>
1.	Yes	18	90%
2.	No	02	10%

In response to the item related to the cost of the software the respondents responded as follow:

<b>S. No.</b>	<b>Option</b>	<b>No. of Participants</b>	<b>Percentage</b>
1.	Expensive	13	65%
2.	Economical	7	35%

In response to the question related to the usability of software, 55% respondents who used the option 'No' gave different types of arguments i.e. have to develop as per the content, are not according to culture, and not useful. But they suggested that government should support such people who are capable to do this work, top education leadership should recruit IT experts who can perform this role. In response to question related to the effectiveness of ICTs in developing critical thinking skills in secondary school students, the responses of Computer Science teachers are as under:

### **ICTs and Critical Thinking Skills**

<b>S. No.</b>	<b>Option Used</b>	<b>No. of Responses</b>	<b>Percentage</b>
1.	Very Much	12	60%
2.	Much	04	20%
3.	Fairly	04	20%
4.	Less	00	0%
5.	Not at All	00	0%
Total			100%

## **DISCUSSION**

As almost all respondents agreed that application of ICT for teaching and learning is useful, but they have shown their concern related to the funds issues. Specially the teachers teaching Computer Science as subject were having opinion that in advanced countries technologies are very successfully implied for classroom teaching and learning and changes in the thinking process of the students is observed therefore they have recommended the use of those technologies. Moreover, they have shared their point of view the available software in the market do not fulfill the requirements of our students because some have issues/contraction with our culture and some have such language which is not understood by the students of our country. Therefore, government of Pakistan should take this seriously and should invest some money if we want to take our next generation with the pare of other developed nations. Because technologies are also helping in improving or developing critical thinking skills of the students.

## **RECOMMENDATION**

Keeping in view the responses of the teachers, heads and software developers following are recommended:

1. Government should invest in bringing technologies in the classroom.
2. Teachers should be given training about the use of technologies for classroom teaching.
3. Use of technology for teaching and learning should be made compulsory.
4. Pakistan software developers should be given opportunity in this regard.

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