1. Role of Teacher in ICT Education Its Challenges and Issues Towards Learning

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Abstract:

Today we can simply treat Information and Communication Technology (ICT) as a great technology for enhancing the quality of education. Yet here are number of advantages of using ICT in education system it has some issues and challenges to be considered. As ICT is associated with computer-based technologies, they also include conventional such as radio television and telephone techniques. Whereas the use of such technologies provides ease of using trends it is also integrated with some sort of issues and challenges. Some major issues such as distance and climate incentive interactivity cost effectiveness equity and sustainability degrade the full utilization of the technology. The needs to be resolved for having the best benefit of ICT in education stream some challenges are also there which are the major part for the consideration we normally face while using the technology of ICT in education such as educators' infrastructure education administrators' capacity building policy makers and planners' language and content. Well ICT is good to use in some cases it can be better by improving its features, but it can give best result if these issues and challenges are resolved. The primary focus here is to discuss about some major issues and challenges related to ICT in education. With a little effort we can extend the tag of ICT in education from good to better and better to best. ICT has given rise to a host of legal and ethical issues and challenges in the use of ICT for education. Pre-service and in-service teachers as well as students need to know to a reasonable extent about the issues and challenges in the use of ICT for education. As teachers or potential teachers and students they need to be above reproach. Teachers and students should understand the basic issues effectiveness cost equity and sustainability as well as the challenges infrastructure related challenges capacity building challenges related to financing the cost of ICT use to mention but few surrounding the use of ICT in education and then apply those issues as principles in practice. This study aims to investigate the teachers' perceptions of the barriers and challenges preventing teachers to integrate ICT in the classroom. Therefore, a validated questionnaire was administered to 40 high school teachers who were selected from the six main educational districts in the city. Stratified random sampling was used to select equal number of respondents from each educational district. The findings indicated that although teachers had a strong desire to use ICT in the classroom they were encountered with some barriers. Insufficient technical supports at schools and little access to Internet and ICT were considered as the major barriers preventing teachers to integrate ICT into the curriculum. Moreover, the descriptive analysis of the results showed that shortage of class time was another significant barrier discouraging teachers to use ICT into the classroom.

Keywords:

Role, Teacher, ICT, Education, Challenges, Issues, Learning.

1.1 Introduction:

ICT is a power and playing a crucial and vital role in all aspect of human life. There is no area that has not been influenced by digital phenomenon. Education is not exception to it. ICTs are becoming a crucial part of our education system. It has transformed our education system into knowledge and information society. It has become an integral part of our today's teaching and learning process. The use of ICT in the classroom is very important for giving students opportunities to learn and apply the 21st century skill with the world moving into the digital media and information. The role of ICT in education is becoming more and more important. In this paper an attempt has been made to discuss the role of ICT in education. This paper also highlights on what are the issues and challenges in the implementation of ICT in education. This paper discusses possible solutions after analysis of issues and challenges. Providing access to ICTs is only one facet of efforts to address equity issues. Equal attention must be paid to ensuring that the technology is actually being used by the learners and in ways that truly serve their needs. ICT stands for information and communication technology. It is concerned with the storage retrieval and manipulation transmission and receipt of digital data. Information and communication technologies are associated with the various technologies such as radio television telephone internet and many more. As we are well aware that with the help of internet and such technologies, we are able to access any sort of information and even explore the whole world just on our fingertips. ICT can simply be defined as the use of hardware and software for systematic and methodological management of information. It generally refers to the technology used to input store create share transmit or exchange the particular task. The effectiveness of ICT in education is directly depends on the number of inventions in science and technology which has also improved the speed of the communication including security. ICT has become the integral part of new era. ICT includes numbers of communication devices such as, cellular phones satellite system as well as video conferencing and distance learning. It can be considered in particular context also, such as ICT in education health care or libraries and thus it plays different roles in various fields. Now a day's ICTs are upgraded in number of ways, and this have created a global place in which we can communicate with each other across the whole world. Yet, technology is upgrading day by day it do have number of positive factors but it does includes number of issues and challenges even. Just getting succeeded in improving the communication tools or network is not enough we must also be aware of how to apply it and what is the mean behind ICT literacy. Rapid developments in information and communication technologies (ICTs) in recent years have resulted in significant changes in the way the world operates and communicates. This in turn had an impact on educational and training needs both in terms of the content and the delivery of educational and training services but also there has been increasing pressure on decision makers to acquire new technologies. Simultaneously forms of ICT are multiplying with an increasing array of ICT options for decision makers to choose from when integrating ICT into education and training. Faced with these situation policy makers in many countries world-wide thought that to simply equip educational and training institutions with personal computers and train teachers in their use would prepare learners for the demands of the

21stcentury However simply providing access to ICT is not going to radically change education systems for the better. The clear picture of what education should be seeking to achieve is the need for ICT to be utilized to their full potential within education systems. In order to make successful use of ICT in enhancing the reach and quality of teaching and learning policy makers need to be aware of how ICT can be of best value in their country's education system and need to develop a supportive policy environment and framework at the national level for the integration of ICT into their education systems. The potential of each technology varies according to how it is used. This identifies at least five levels of technology use in education presentation demonstration drill and practice interaction, and collaboration. Each of the different ICTs prints audio or video cassettes radio and TV broadcasts computers or the Internet may be used for presentation and demonstration the most basic of the five levels. Except for video technologies drill and practice may likewise be performed using the whole range of technologies. On the other hand, networked computers and the Internet are the ICTs that enable interactive and collaborative learning best for their full potential as educational tools will remain unrealized if they are used merely for presentation or demonstration. One has to evaluate the educational process in various lacunas where technology can be helpful to achieve desired results then one should create appropriate technology and use it to make better human learning process. Factors like conditions of learning teaching methodologies are talked about in the above context and hence we have to study one more use of educational technology. The establishment of technology is the backbone of improvement for student learning professional development and administration. With the help of integrating technology to prepare students for careers and keep students engaged in the teacher educators up to date on the latest technologies to help them be more effective in their teaching environments. Increasing support for pre-service education technology programs to help to produce more technologically by teachers in using technology to scale improvement and to accelerate reform. Developing systems and strategies that will help educators to use assessment of data to improve student learning and investing in research and development focused on innovation in teaching and learning process and promoting in global digital citizenship through technology-based collaboration.

1.2 Issues of ICT in Education:

Effectiveness: Generally, effectiveness is the capability of producing a result. Thus, effectiveness of ICT depends on the purpose that how and for what they are used. Working of ICT is different for different areas. Like other number of educational tool ICTs do not work for everyone and everywhere in the same way.

1.2.1 Effectiveness Depends Up on Education:

Enhancing Access: There are number of factors where ICT had helped a lot and in difficult times to quantify the degree to which ICT is not sufficient until the capabilities are enhanced.

Raising Quality: Quality is the major factor that affects the effectiveness of ICT in the field of education and quality can be raised by using various mean of communications. The devices such as radio and television broadcast but it is still an issue to have better result by using such technologies.

Cost: Cost is considered one of the major issues of the ICT in education. It is necessary to implement this technology that is cost effective e.g., educational TV broadcasts computer-based learning like online learning radio broadcasts. The educational TV broadcast and computer-based learning have online learning is more expensive than radio broadcast. In the same manner television broadcast is cheaper than that of computer based and online learning. Generally, the cost depends on the purchasing construction and retrofitting of equipment which includes initial purchase of hardware and software. Technological literacy is required for learning with technologies to be possible implying a two-step process in which students learn about the technologies before they can actually use them to lean. However there have been attempts to integrate the two approaches. Learning through computers and the Internet combines learning about them with learning with them. It involves learning the technological skills just in time or when the learner needs to learn them as he engages in a curriculum-related activity.

1.2.2 Types of Cost Effectiveness in ICT:

Fixed cost: This type of cost is at least required to establish the ICT connection such as retrofitting of facilities. It includes Hardware and software for Up-gradation and replacement.

Variable cost: This is the type of cost which is may not be required to establish the ICT connection. It depends on the quality that has to be provided for professional development. It includes Connectivity that includes internet access in maintenance and support including utilities and supplies. Normally cost increase when it is to conduct professional training for teachers when to buy ICT tools and so on.

Equity: In general equity is the quality of being fair and impractical. There are disinclined accessing the ICT between developed and developing countries as there are numbers of divisions that includes economic geographic social, and cultural or gender lines. Ideally everyone wishes the equal opportunity. So, equity varies on the basis of the divisions that are drawn along with various countries and within the country.

Sustainability: It deals with the ability to be maintained at a certain rate or level. Direct class teaching where broadcast programming substitutes for teachers on a temporary basis School broadcasting where broadcast programming provides complementary teaching and learning resources not otherwise available and general educational programming over community national and international stations which provide general and informal educational opportunities.

1.3 Objective of the Study:

- To understand the concept of information and communication technology.
- To examine the need of ICT in education.
- To identify the issues and challenges in the implementation of ICT in the educational institution.
- To Suggest recommendation and measures for implementation of ICT in education.

1.4 Methodology:

This is a descriptive study. For this study secondary data was collected. To compile data for the study reports books periodicals research papers journal peer reviewed article were retrieved for comprehensive and holistic analyses.

1.4.1 Challenges of ICT in Education:

Education with the help of ICT actually requires some clear and specific objectives guidelines and time bound targets mobile resources and even the political commitments.

Educational Policy and Planning: It is required to choose the best ICT based model. The chosen model must have proven to work in specific conditions, and it even needs to be tested. Existing resources must be specified and must develop the strategies for resources to support ICT over the long term.

Infrastructure Related Challenges: Firstly, it requires appropriate place such as rooms or buildings for implementing the technology. Secondly very basic requirement is availability of electricity and other things.

Policy Makers and Planners: It is required for policy makers to have a look at various types of ICT in the country. It can be general in education system.

Very basic requirement for computer-based systems or online learning is to access the computer in institutes schools' communities and households and even internet services.

1.4.2 Challenges of Teacher for Capacity Building:

Professionals: Professionals are the trained teachers who teach the use and access of technology. They must have skills with particular application Changes with respect to technology up-gradation for integration into existing curriculum development for learners.

Education Administrators: A good leadership quality is required in ICT programs as it plays a key role in integration of ICT in education. Today lack of such qualities (e.g., good leadership) affects the quality of ICT. The integration of ICT program will be effective and sustainable if administrators have broad understanding of such technology, and they make the use of such programs efficiently.

Technical Support Specialists: Technical support requirements are actually depending upon the factor of what and how the technology is used and general requirements such as installation process maintenance of equipment various operations network administration and network security.

Content Developers: The content in ICT program should be in understandable language generally English and further the educational development should be generated such as radio programs, CD, DVDs etc.

1.4.3 Role of Teacher in ICT Education:

This indicated that there are three general approaches to the instructional use of computers and the Internet, namely learning about computers and the Internet in which technological literacy is the end goal. Learning with computers and the Internet, in which the technology facilitates learning across the curriculum and learning through computers and the internet integrating technological skills development with curriculum applications. Use of research and collaboration tools such as search engines and e-mail basic skills in using programming and authoring applications such as Logo or Hyper Studio Developing an awareness of the social impact of technological change Learning with the technology means focusing on how the technology can be the means to learning across the curriculum. It includes presentation demonstration and the manipulation of data using productivity tools and the use of curriculum specific applications. It is noted that the introduction of ICT in education when done without careful deliberation can result in the further marginalization of those who are already underserved and disadvantaged. For example, women have less access to ICTs and fewer opportunities for ICT-related training compared to men because of illiteracy and lack of education lack of time lack of mobility and poverty. Boys are more likely than girls to have access to computers in school and at home. Not surprisingly boys tend to enjoy working with computers more than girls. Social sustainability is a function of community involvement. The school does not exist in a vacuum and for an ICT enabled project to succeed the parent's political leader's business leaders and other stake holders is essential.

Innovation can happen only when all those who will be affected by it. Whether directly or indirectly know exactly why such an innovation is being introduced what the implications are on their lives and what part they can play in ensuring its success. ICT-enabled programs must ultimately serve the needs of the community.

Thus, community wide consultation and mobilization are processes critical to sustainability. In short, the sense of ownership for the project must be developed among all stakeholders for sustainability to be achieved. Political sustainability refers to issues of policy and leadership. One of the biggest threats to ICT enabled projects is resistance to change. For instance, teachers refuse to use ICTs in their classrooms then use of ICTs can hardly takeoff much less be sustained over the long term.

Because of the innovative nature of ICT enabled projects leaders must have a keen understanding of the innovation process identify the corresponding requirements for successful adoption and harmonize plans and actions accordingly. Technological sustainability involves choosing technology that will be effective over the long term. In a rapidly changing technology environment this becomes a particularly tricky issue as planners must contend with the threat of technological areas. At the same time there is the tendency to acquire only the latest technologies which is understandable in part because these are the models which are likely to push. Generally, however planners should go with tried and tested systems stability issues may be the latest technologies. Again, the rule of thumb is to let the learning objectives drive the technology choice and not vice versa the latest technologies may not be the most appropriate tools for achieving the desired educational goals. When making technology decisions planners should also not just consider cost factor but also the availability of spare parts and technical support.

1.5 Discussion:

Policy makers should also look at the ubiquity of different types of ICT in the country in general and in the educational system at all levels. For instance, a basic requirement for computer based or online learning is access to computers in schools' communities and households as well as affordable Internet service. In general ICT use in education should follow in society. Education programs that use cutting-edge technologies rarely achieve long term success. It is cheaper and easier to introduce a form of technology into education and keep it working where education is riding on the back of large-scale developments by governments or the private sector. Television works for education when it follows rather than precedes television for entertainment computers in schools can be maintained once commercial and private use has expanded to the point where there is an established service industry. Research on the use of ICT in different educational settings over the years invariably identify as a barrier to success shows the inability of teachers to understand why they should use ICT and how exactly they can use ICT to help them to teach better. Unfortunately, most teacher professional development in ICT is based on teaching the tools and light on using the tools to teach. Teacher anxiety over being replaced by technology or losing their authority in the classroom as the learning process becomes more learner centered an acknowledged barrier to ICT adoption can be alleviated only if teachers have a keen understanding and appreciation of their changing role. Leadership plays a key role in ICT integration in education. Many teachers or student-initiated ICT projects have been undermined by lack of support from education administrators. For ICT integration programs to be effective and sustainable administrators themselves must be competent in the use of the technology and they must have a broad understanding of the technical curricular administrative financial and social dimensions of ICT used in education. One of the greatest challenges in ICT use in education is balancing educational goals with economic realities. ICTs in education programs require large capital investments and developing countries need to be prudent in making decisions about what models of ICT use will be introduced and to be conscious of maintaining economies of scale. Ultimately it is an issue of whether the value added of ICT use off sets the cost relative to the cost of alternatives. The use of ICT in education is now seen world-wide as both a necessity and an opportunity. The challenges of ICT in education deal with the use of ICTs within educational technology. The main issues and challenges of ICT in education mean implementation of ICT equipment's and tools in teaching- learning process as a media and methodology. The issues and challenges of ICT in education is generally to familiarize students and teachers with the use and workings of computers and related technologies as well as the social ethical technological costs and electricity challenge to mention in education. ICT plays a great role in education. New and emerging technologies challenge the traditional process of teaching and learning, and the way education is managed. The integration of ICT in education is important to improve the quality of education and make it more effective. No Nation can develop without ICT based education. It is regarded as the fuel of development. The application of ICT is creating significant changes in teaching and learning at all levels of ICT use in the classroom is important for giving the students opportunities to learn and apply in 21st century skill. This not only improves teaching learning process but also provides facility of e-learning. ICT is an effective tool to provide greater flexibility in education. With the use of ICT, it is now possible for the learner to access knowledge regardless of time and space. Teachers and educational system are using ICT integrated teaching and learning process to inculcate required knowledge and skills among the students.

The educational effectiveness of ICTs depends on how they are used and for what purpose. And like any other educational tool or mode of educational delivery ICTs do not work for everyone every-where and in the same way. Effective ICT could be viewed in the number of positive factors of ICT to use in education as well as there are negative factors also. ICT in education can plays number of roles it can give positive results if issues and challenges are sort down.

This technology has number of advantages but in some specific conditions. If some conditions implementation criteria professionals' administrations are considered, then ICT is the best future scope for us in many ways. As the technology has number of advantages it does have number of issues and challenges too. If focused on such issues this technology can be the future tool in education and other fields.

The integration of information and communications technology in teaching and learning is considered as a medium in which a variety of approaches and pedagogical philosophies may be implemented. However, ICT as a teaching aid is more complicated in that it demands more specific skills from the teachers. Moreover, teachers are faced with some challenges and barriers that prevent them to employ ICT in the classroom or develop supporting materials through ICT.

This study concluded that the high school teachers are familiar with ICT and ICT usage however this does not necessarily mean that they integrate ICT into the curriculum. In addition, insufficient technical supports at schools and little access to Internet and ICT prevent teachers to use ICT in the classroom.

Shortage of class time and time needed to learn using ICT were reported as two other key barriers for teachers to integrate ICT into the curriculum. In order to integrate ICT into the curriculum on the one hand teacher training institutions should provide appropriate and sufficient support for the teachers.

On the other hand, teachers should be aware of what is happening in the classroom and what changes are occurring. Therefore, possible effective uses ICT can be applied in teaching and learning which will eventually lead to the improvement of educational programs.

1.6 Conclusion:

The key points may be considered as recommendation for the implementation of ICT in education. Adequate funding is very important for the implementation of ICT in education. Govt. should provide adequate fund in the education sector. Technical support should be provided to the teachers to overcome identified barriers.

The government should undertake strong policies to implement of ICT in educational institution. Teachers should be trained on how to use ICT in teaching. Workshop training programs should be organized to train the teachers and non-teaching staff in order to make them competent to handle ICT infrastructure and services. In order to solve the problem of language and content in local languages should be created for preservation of cultural values. Positive attitude needs to be developed towards the use of technologies.

The language of the authorized content should be clear and easy to understand. The student should also be provided training regarding basic knowledge of ICTs. The training programs are required not only to operate computer but also to familiarize them with the e-commerce e-business e marketing e-library as per modern needs.

1.7 Recommendations:

The need to learn mental preparedness of the student previous subject knowledge and expertise of teacher and methods used to teach motivation for learning are responsible for effective learning. If one uses to consider these factors, then the use of educational technology will be productive. So, one has to study all aspects of teaching and learning process and then find a place for educational technology to suit the needs. This development focuses more on the process of learning and teaching than technology and equipment's. Educational technology is a systematic way of designing, implementing and evaluating the total process of learning and teaching in terms of specific objectives based on research in human learning and communication and employing combination of human and non-human resources to bring about more effective instructions.

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