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Role of Information Communication Technology in Education: An Overview

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Abstract: Information communication technologies (ICT) at present are influencing every aspect of human life. They are playing salient roles in work places, entertainment, business, and education. Moreover, many people recognize ICT as catalysts for change; change in working conditions, handling and exchanging information, teaching methods, learning approaches, scientific research, and in accessing information communication technologies. In this digital era, ICT use in the classroom is providing supreme opportunities for students to learn and apply the required twenty first century skills. The aim of this paper is to explore the advantages of Information Communication Technology (ICT) use in education, quantitative research method used for results, that concluded effective implementation of ICT is an essential means to improve teaching and learning processes. It focus the impact and benefits of ICT in education.

Keywords: ICT, impact of ICT, role of ICT, learning and teaching process.

Introduction

ICT stands for “Information and Communication Technology”. Refers to technology that provides access to information through telecommunications. It is similar to information technology (IT) but focuses primarily on communication technology. This includes the Internet, wireless networks, mobile phones and other communication media. This means that today there are increasing opportunities to utilize ICT in teacher education programs and improve the quality of teachers for effective teaching. According to UNESCO, "ICT is the scientific, technical disciplines, management techniques used in the handling of information, its application and linking information to social, economic and cultural concerns." It is the subject of education in our society. It is more committed to the upliftment of our society in all areas. Experienced teachers can develop creative students into outstanding social workers for society, philosopher, poet politicians, and more. Teachers can play a friendly role with learners. The rapid development of technology has creatively changed our lifestyle and the demands of society. With the impact of new technologies in the workplace and daily life, today's teacher education institutions are restructuring their educational programs and classrooms to minimize the gap between current and future teaching and learning technologies. . ICT brings dynamic changes to society. They affect every aspect of life. The impact is becoming more and more pronounced in schools. As ICT provides more opportunities for both students and teachers to adapt learning and teaching to their individual needs, society requires schools to respond appropriately to this technological innovation.

Chen (2008) showed that there is a mismatch between teachers' beliefs and actual practice when it comes to integrating technology into the classroom.

According to (Flores & Cortes, 2016), the application of technology and its impact on the educational process is fundamental, accessible to students and teachers, convenient to use, and fosters understanding of an underutilized area that has grown in the past two years.The context of education with the use of technology has become a critical issue, and its importance goes far beyond the technological tools that make up the educational environment. They play a role in building pedagogy and enhancing learning (Vega, 2016).

This technology will change the transmission and acquisition of knowledge. This virtual educational modality builds on the functionality and effectiveness of these

tools, enabling them to be used for a variety of possibilities that can be implemented at all levels of education. This greatly contributes to education as it enables the integration of skills and competencies of both students and teachers (Márquez, 2017).

ICT is recognized as a tool, especially necessary for sharing and conceptualizing new knowledge in social life such as education, private life and commerce (Rivera & Suconota, 2018).

The transformation witnessed by these technologies has the potential to translate into pedagogical supports that can optimize the character of student instruction and completely transform the way information is acquired, processed and interpreted (De la Hoz, Martínez, Combita & Hernández, 2019).

ICT and its contributions are evolving rapidly and changing the field of knowledge. In this sense, it is understandable that pedagogy as order faces various challenges and requires more in-depth research (Bruner, 2018).

Innovation does not lie in ICT, but in the behavior of teachers and students. Due to the briefings, reciprocity, and treatment of the references provided, we need to find the key to understanding and assessing the magnitude of the boom (Aparicio, 2019).

Objectives of ICT in education

1. To improve the speed and success rate of learning.
2. Increased personal acquisition of knowledge and skills necessary for better lives and sustainable development.
3. Develop and accelerate the relationship between people and the environment.
4. Increase diversity and literacy in educational methods and services through distance learning.

The operational definition of Information and Communication Technology (ICT)

This article refers to computers and internet connections used to process and communicate information for learning purposes.

E-Learning: A learning program that uses all part of an information network, such as the Internet,extra-net (WAN), intranet (LAN), to interact, deliver and facilitate courses. Web-based learning is a subset of e-learning and refers to learning using models, the blackboard, or an Internet browser such as Internet Explorer (Tinio, 2002). **Blended Learning:** Refers to a learning model that combines classroom practice with e-learning solutions. For example, teachers can collaborate with the class to facilitate student learning, or use models (Modular Object Oriented Dynamic Learning Environments) to facilitate learning outside of the classroom.

Constructivism: A learning paradigm that envisions learning as a process by which individuals "construct" meaning and new knowledge based on previous knowledge and experience (Johassen, 1991). Educators also call it an "emerging pedagogy," in contrast to the long-held behaviorist view of learning.

Learner-centered learning environments: Learning environments that pay attention to the knowledge, skills, attitudes, and beliefs that learners bring to the learning process, and whose impetus derives from a learning paradigm called constructivism. In the context of this article, it means the personal participation of a student in a learning task using a computer or internet connection. Students and teachers need adequate access to digital technology and the Internet in classrooms, schools, and teacher education.

The role and benefits of ICT in education

Traditional education has focused on content. Courses have been written around textbooks for many years. Teachers delivered lectures and presentations interspersed with tutorials and learning activities to reinforce and practice the content.

Modern curricula now promote competence and better performance, and are well supported and encouraged by new teaching technologies. priority (Stephenson, 2001). Increasing use of ICT as a tool in daily life will improve the quality of students learning. According to (Newhouse P., 2002), ICT-enhanced learning environments may benefit constructivist approaches to education. One of the main benefits of using ICT in education systems is preparing current and future generations of students for a workplace where ICT, especially computers, the Internet and other related technologies, are becoming more and more prevalent.

Improve the quality of education and promote collaborative learning. ICT enables learners to provide fast and accurate feedback (Becta, 2003).

This facilitates deep learning and enables educators to better respond to the diverse needs of different learners (Lau & Sim, 2008). This enables rapid learning and enables effective mapping of learning paths. These computer and technology, students are equipped with desirable skills to use ICT effectively (Anu Sharma et al, 2011).

ICT supports changes in how students learn as they move from content-based curricula to competency-based curricula. This is related to the transition from a teacher-centered form of education to a student-centered one (Yusuf et al. 2013).

Today, modern curricula favor and promote competence and achievement. ICT and its achievements help other technologies make our lives more comfortable and purposeful. In recent years, the development of ICT has progressed rapidly. Therefore, the entire educational system needs to be reformed and integrated into educational activities in order to achieve balance.

Traditional learning was hard, but the introduction of ICT changed the traditional concept of teaching and learning. It has the potential to change the nature of education. ICT and its role have great potential to achieve their goals and help people involved in processes and products in many ways.

Role or influence of ICT in education.

ICT has the potential to improve a country's education system.

- Allow students to demonstrate their achievements in ways not possible with traditional methods.
- ICT helps satisfy students' curiosity, inventory and construction urges.
- ICT enables new forms of interaction between students, teachers, educational staff and communities and helps improve the quality of education.
- ICT works as a new tool, enabling improved learning and teaching and providing students and teachers with new tools that contribute to capacity building.
- ICT improves the quality and structure of curricula by enhancing competence- and performance-based approaches.
- Access tutorials anytime at your convenience. Learners can enroll from anywhere.
- Teachers are well supported by ICT in their teaching work. o Increase variety of educational services and media.

- Enhance this learning process by providing more interactive materials that motivate learners and facilitate the acquisition of fundamental skills.
- ICT will make education more accessible to all, and children in remote rural areas will have direct access to their homes through distance learning.

Impact of ICT on teacher

Teachers are beginning to realize that being able to teach at any time is opportunistic and can be used to their advantage. Learners are free to participate in learning activities whenever they have the opportunity. The continued and increasing use of information and communication technology in the educational sector will lead to expansion of existing temporal and spatial possibilities in the coming years. As students gain access to information and communication technology, so does the range of opportunities available to them. Students and teachers need to be taught how to build their own educational environment using the diverse possibilities of information and communication technologies.

Influence of teachers need a wide range of educational and instructional skills to develop the necessary level of knowledge in relation to the application of information and communication technologies and to create a good learning environment for their students. − excellent pedagogical, and psychological craftsmanship − high degree of expertise in relevant subjects − deep understanding of contemporary teaching techniques − ability to adapt student leadership processes to individual needs Typical requirements include the following skills: − Creativity − Flexibility − Logistics skills − Project management skills − Administrative and organizational skills − Ability to work in groups Teachers take action to fill knowledge and skill gaps.

Impact of information and communication technology on how students learn

Technology is also contributing to changes in the way students learn. The shift from a context-centered curriculum to a competency-based curriculum is often associated with a shift from teacher-centered to student-centered education which enable learning anywhere. The benefits of delivering education and training wherever it is needed include not only convenience, but also the reduction of costs associated with travel and time away from work, and the placement of learning activities in relevant and meaningful contexts. Includes what is applicable. Thanks to the communication skills of today's technology, many learners have the opportunity to enroll in courses offered by outside universities rather than those offered by their local educational institution. These classes are made up of

learners from different backgrounds and ethnicities. It not only facilitates the delivery of programs, including units and courses offered by various institutions, but also provides freedom of choice anytime, anywhere. Learning Anytime Students are beginning to see the benefits of learning anywhere, anytime. Advances in online technology have evolved learning into an activity that is not bound by pre-determined schedules or time frames.

Methods and material

The aim of this paper is to identify the role of ICT integration in education. For this purpose quantitative research methodology used and sixty female teachers selected from public sector schools through random sampling, as for scale used three and four likert scale questionnaire to access the effectiveness of ICT integration in teaching and learning process.

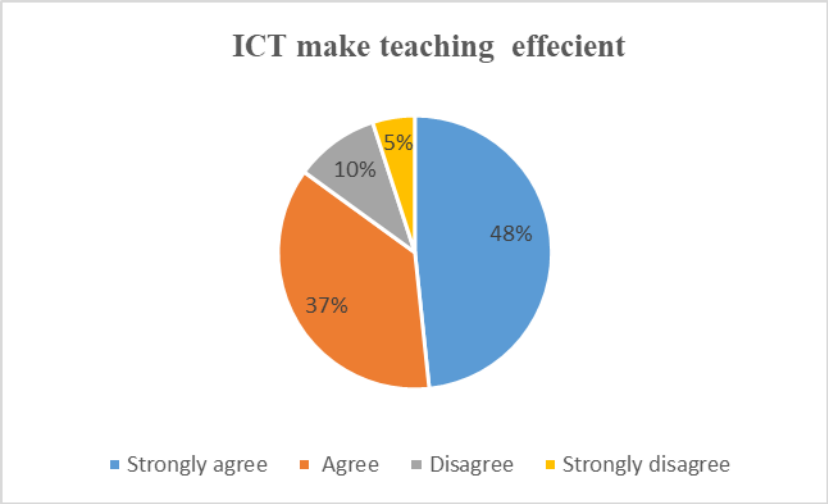
Table 1. Use of ICT

Comfortably use of ICT by teachers

Comfortably use of ICT device by teachers	**Frequency**	**Percentage**
Very comfortable	25	41.66%
Fairly comfortable	20	33.33%
uncomfortable	15	25%
Total	60	100

As can be seen in the Table 1 about teacher perception of ICT in teaching, it shows that most of teacher aware from ICT and 75% of teacher are comfortable using ICT devices.

Figure 1 show the graph that ICT make teaching process easier



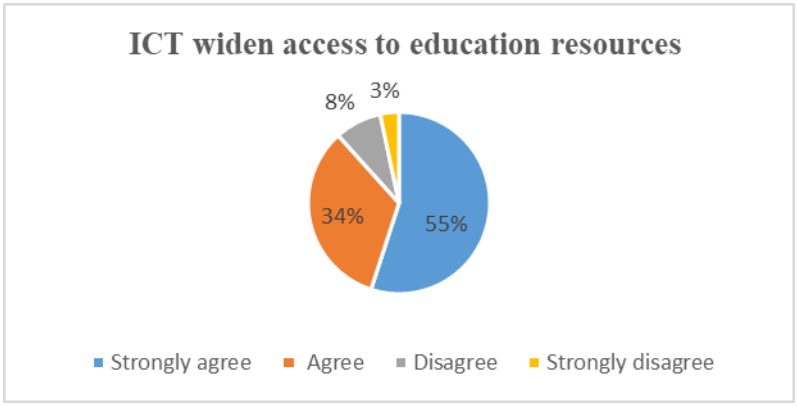
According to above figure, the results show that learning and teaching motivation increases when using ICT, 5% of people say very little and 48% are sufficient. Research results show that using technology aids increases student knowledge and interest.

Table 2 Usage of ICT in teaching

Comfortably use of ICT device by teachers	**Frequency**	**Percentage**
Use more often	20	33.33%
Use rarely	15	21%
Do not use at all	25	41.6%
Total	60	100

Table 2 show that 20 out of 60 respondents frequently use ICT in teaching, 15 out of 60 respondents occasionally use ICT in teaching and 25/60 don't use at all. From results it's clear that i.e. 58.3% of the teachers used ICT in teaching and learning process.

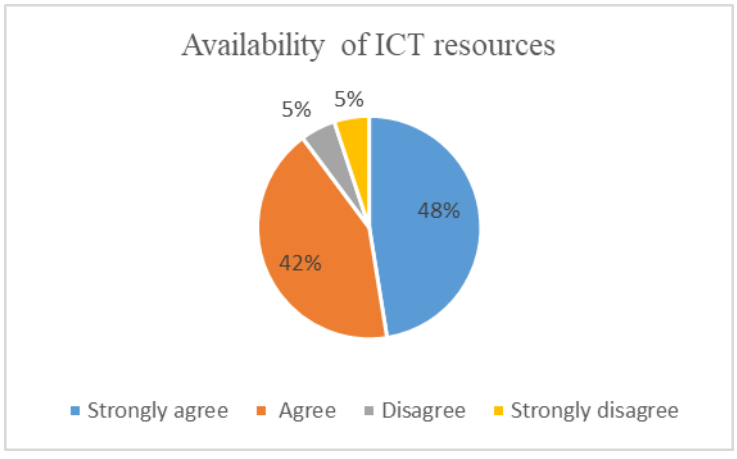
Figure 2 ICT widen access to education resources



From the results shown in figure that 84% of the respondent agreed that ICT facilitate and also provide high access to education resources, only 3% strongly disagreed.

The globalization of technology has made the teacher's role more structured, more dynamic and reflective of collaboration (García & Gutiérrez, 2020). Therefore, the highest percentage believe that the teaching and learning process is ineffective without these tools.

Figure 4 . Availability of ICT resources



The results from graph shown that 90% of respondent agreed inaccessibility and unavailability of ICT facilities and resources that cause difficulties in use of ICT in teaching and learning process in education, 5% disagreed.

Table 3. Teacher attitude towards ICT

Teacher attitude toward ICT	**Frequency**	**Percentage**
Storngly agree	26	43.33%
Agree	25	41.66%
Disagree	5	8.3%
Strongly disagree	4	6.66%
Total	60	100

From the results of table 3, 85% of respondent agreed that teacher attitude towards the ICT as a barrier to use ICT to facilitate teaching and learning process, 6.6% strongly disagreed.

Research results show that current educational realities are constrained by technology practices, and that under utilization of technology is detrimental to the educational process. Therefore, it is recommended to carry out technical training that is useful for instruction on an ongoing basis.

Conclusion

The revolution in information and communication technology has turned national borders into meaningless lines drawn on maps. In this scenario, education is identified as one of the services that need to be opened up for the free flow of trade between countries. The use of ICT in modern education can save governments a great deal of money. In addition, the training resources will be among the best in the world, resulting in a significant improvement in quality. ICT can contribute to the quality and standard of education by being used at different stages of education. However, the lack of resources in the education sector is an obstacle to the introduction of ICT in the development of the 21st century.

The challenge of using and integrating ICT into modern education faces many challenges. However, problems such as lack of ICT facilities in educational institutions, lack of skills to use ICT equipment, language problems, lack of funds, lack of skilled workers, etc. can be overcome. Strategies can be developed to raise awareness and widely promote ICT education. Skills and access to skills for learning and using ICT, greater involvement of local communities for independence in using ICT, and development of supporting infrastructure facilities such as electricity and internet. Governments need to act. Responsible authorities must strive to overcome these challenges in order to benefit modern education and help teachers and institutions become more modern and dynamic. Ultimately, the use of ICT enhances students' learning experience. It can also help you build a successful career in a technology world.

Recommendation

1. Consideration of ICT as a tool that can contribute to continued educational innovation in the centre, should be incorporated into the strategic plans of schools and further into the curricula of each grade.
2. Academic institutions need modern computer labs and other appropriate infrastructure.
3. Teachers play a fundamental role in determining what and how to teach (and what students learn) using ICT , so teachers need to be trained using ICT. These are tools that help us understand the knowledge, skills and dynamics of reality, adapt them and use them as tools in teaching and learning process.

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